THE ABORIGINES OF PORTO RICO AND NEIGHBORING ISLANDS

BY

JESSE WALTER FEWKES

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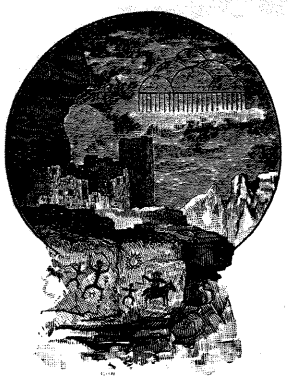

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By Jesse Walter Fewkes

INTRODUCTION

The author of the following monograph was commissioned by the Director of the Bureau of American Ethnology to visit the island of Porto Rico in 1902, and to continue the exploration in 1903 and 1904. The object of these visits was the collection of data and specimens that would shed light on the prehistoric inhabitants of this West Indian island which had lately come into the possession of the United States. The first visit was a reconnoissance, preliminary to the more extended study that followed on the two visits referred to, in 1903 and 1904. The work in 1902 was limited to Porto Rico, but the fact became evident, as it progressed, that the problem of the character of the aboriginal Antilleans could not be satisfactorily solved from material collected on any one of the many West Indian islands. A special examination of neighboring islands for comparative studies became necessary. With this object in view the author was directed in 1903 to make a short trip to Haiti and in 1904 to visit Cuba, Trinidad, and the Lesser Antilles, which, extending from South America to Porto Rico, formed a natural way of intercommunication or migration of primitive races. The gathering of material in these excursions was especially successful, and important prehistoric objects from several of the islands visited were added to the existing collection in the National Museum. A general summary of the results of the expedition of 1903 has already been published in the *Smithsonian Miscellaneous Collections*,[a] but this preliminary report was limited and only partially indicates the extent of the work performed or the amount and significance of the material collected. An enumeration of the latter, embracing more than 1,200 specimens, comprises the important collection of Archbishop Meriño, of Santo Domingo, and those of Señores Zeno Gandia, Neumann Gandia, Angelis, and Fernández, of Porto Rico. These

[a] Preliminary Report on an Archeological Trip to the West Indies (XLV, no. 1429, 1904).

important acquisitions, with the many specimens obtained one or two at a time by excavations or purchase, equaled in number the West Indian objects previously existing in the Smithsonian collection, which was already one of the largest in the world.

The collection made in 1904 was numerically somewhat smaller than that of 1903, but not less important. It contains several unique specimens that add greatly to the value of the material already acquired. Small collections were brought from Cuba, Trinidad, Barbados, St Vincent, and Grenada. The Neumann collection, which was the largest purchased in 1904, contains several rare specimens of types of stone artifacts hitherto unrepresented in the United States National Museum. Among the important objects obtained this year (1904) are a fine effigy vase, three three-pointed idols presented by Señor Zoller, of the Aguirre Central, near Ponce, and a collection of stone implements from St Vincent, presented by Mr Jacobson, of Port of Spain, Trinidad. While the collections now in Washington serve as the basis of this article, the author has drawn some of his material from published descriptions of Porto Rican prehistoric objects in the museums at New York, Copenhagen, Paris, Berlin, and London.

The author is indebted for assistance in his West Indian field work to many friends, among whom should be specially mentioned Maj. J. W. Powell, late Director of the Bureau of American Ethnology; Dr W J McGee, formerly ethnologist in charge, and Prof. W. H. Holmes, the present Chief. Numerous courtesies were extended to him by officials in Porto Rico, as well as by local archeologists in that and other islands. He takes this opportunity to express his thanks to all those to whom he has been indebted in the preparation of this work.

He is indebted to Señor Ramon Imbert, of Puerto Plata, Santo Domingo, for an opportunity to study the latter's collection and to make use of sketches of several specimens; also to Señor Llenas, of Santiago de los Caballeros, and to many others. Unfortunately, he has not been able to examine the West Indian antiquities in European museums, with the important exception of a few stone idols and implements in the Museo Arqueológico, Madrid. These objects and some others exhibited in the Exposición Histórico in that city in 1892 were examined by the author, who was able at that time to make sketches of the most suggestive, which are pictured in the following pages. He regrets that he has not been able to see several small private collections of which he has information—those made by Mr Suchert, Herr Krüg, M. Pinart, and others. The best collection still remaining in Porto Rico is owned by Padre Nazario, of Guayanilla, but there are several smaller ones containing instructive material. Visits were made to Guayanilla, where the author was hospitably received by Padre Nazario and shown his collection, the result of a lifelong interest in

Porto Rican archeology. It is particularly rich in unique amulets and three-pointed stones and has some rare pottery objects and a few stone collars. The many hieroglyphic markings on the stones that are most highly prized by the owner were also examined by the author, who does not consider them very ancient. In addition the author studied collections in Havana, Santiago de Cuba, St Christopher, Barbados, and in other places. Moreover, supplementary reading and study shed some light on the significance of several specimens the use and meaning of which had not been interpreted in the field.

A survey of all the results of his study and collecting, and comparison with the rich material available for that purpose in the Smithsonian Institution, led the author to the belief that a comprehensive report would be a desirable addition to the existing information on this important subject and an aid to later students in this field of research.

It became evident on the very threshold of the preparation of this report that there exists no comprehensive memoir in English on this subject, and it was therefore regarded as desirable to enlarge its scope so as to cover the whole ground; in other words, to give it a monographic form as far as possible, including the material available in the Smithsonian Institution. For this reason there is here added to descriptions of new objects a review of those in the Latimer collection, so well described by Professor Mason, whereby this work is made comprehensive and, it is hoped, exhaustive, so far as the Washington collection is concerned.

The author has used three methods of gathering knowledge on the subject of this memoir: (1) The historical, (2) the ethnological, and (3) the archeological.

The historical method deals with the published descriptions of the Indians by contemporaries of the discoverers—men like Las Casas,[a] who saw the aborigines before their manners and customs had suffered very great changes. Documents specially describing the natives of Porto Rico are few, but, as the same or a closely related race inhabited the neighboring islands, it is legitimate to bring as an aid to this method of research descriptions, which are many, of the natives of these adjacent islands. It may be said in passing that all accounts of the natives of Porto Rico are derived largely from the writings of Las Casas, Ramon Pane, Benzoni, Oviedo, and Peter Martyr, who have given detailed accounts of the natives of Haiti, adding that whatever is true of the aborigines of this island holds also

[a] Obras del Obispo de la Ciudad Real de Chiapa en las Indias, Sevilla, 1552. Reprinted as Historia de las Indias, escrita por Fray Bartolomé de las Casas, Obispo de Chiapa, I-V, Madrid, 1875.

Las Casas was born in Seville, Spain, in 1474, and died in 1566. He accompanied Ovando to Haiti and lived in the New World off and on for sixty years. His history was written between the years 1527 and 1539. The writings of this sympathetic friend of the Indians are full of most valuable data regarding the manners and customs of the aboriginal West Indians. He knew them from personal acquaintance, and recorded his observations with completeness and accuracy. The history of Las Casas contains quotations from Columbus's diary of his first voyage, constituting a mine of information regarding the aborigines not previously published.

concerning those of Porto Rico. There are in fact no extensive special descriptions of the Porto Rican Indians earlier than the History of Porto Rico by Iñigo,[a] published at the close of the eighteenth century, and as at that time the race had practically disappeared, the chapter on the native culture in this account was compiled largely from Oviedo and Las Casas. The historical method reveals many customs which are incomprehensible to historians unless they are familiar with the light that modern ethnology sheds on the comparative culture of races.

The archeological method supplements the historical, revealing the prehistoric condition of the island and the culture of the inhabitants before written records were made by Europeans. This method deals with stone implements, idols, pictographs, mortuary objects, human skeletons, and the like, including all the most enduring material evidences of man's prehistoric presence which occur in great numbers throughout the island.

The ethnological method considers the survivals in the bodily form and mental characters of the existing natives; their peculiar customs, characteristic words, music, and legends, all that is included in the comprehensive term *folklore*, the old-fashioned ways of life peculiar to the island. It deals likewise with survivals of language in names of places, animals, plants, and objects, including all aboriginal and many dialectic names peculiar to the modern islanders.

The anthropologist may approach his subject by the three methods above mentioned, any one of which reveals enough material to be made the basis of a special article; a knowledge of prehistoric Porto Rican culture may be derived from them all. Naturally, each method has its restrictions. The present population is composed of several amalgamated races, and we find in folklore[b] at the present day evidences of all these races. Archeology is perhaps the most reliable source of information; but even the objects found in the ground, thor-

[a] Fray Iñigo Abbad y Lasierra, Historia Geográfica, Civil y Natural de la Isla de San Juan Bautista de Puerto Rico, nueva-edición, anotada en la parte histórica y continuada en la estadística y económica por José Julian de Acosta y Calbo, pp. i–vii, 1–508, Puerto Rico, 1866. The first edition of Iñigo's Historia was edited in 1788 by Don Antonio Villadares de Sotomayor. The work was republished in 1830 in San Juan, Porto Rico, by Don Pedro Tomás de Córdova, secretary of the governor and captain-general of the island, and a third edition, containing Acosta's notes, appeared in Porto Rico in 1866. English translations of the portions pertaining to the aborigines are found in Report of the Census of Porto Rico, 1899. See also Mr F. Bedwell's consular report, 1879, and First Annual Report of Charles H. Allen, governor of Porto Rico, p. 1–445, Washington, 1901.

According to Don J. J. Acosta, Fray Iñigo Abbad y Lasierra belonged to the Benedictine order and wrote his Historia for the Count of Flórida Blanca in the reign of Charles III. In the Acosta edition use was made of a manuscript then owned by Don Domingo del Monte, which, as is stated in a note, passed to the distinguished Cuban litterateur, José Antonio Echeverría, by whom it was later presented to the order on August 25, 1782.

The First Annual Register of Porto Rico (San Juan, 1901) contains an incomplete bibliography of the island. Many Spanish titles of books are translated into English.

[b] Francisco del Valle Ateles, El Campesino Puertoriqueño, sus Condiciones. Revista Puertoriqueña, II and III, 1887 and 1888. Manuel A. Alonso, Manners and Customs of the People of Porto Rico, 2d ed., 2 v. M. Fernández Juncos, Costumbres y Tradiciones, Puerto Rico, 1882. See also Col. George D. Flinter, An Account of the Present State of the Island of Porto Rico, London, 1834; and Don Pedro Tomás de Córdova, Memorias Geográficas, Históricas, Económicas y Estadísticas de la Isla de Puerto Rico, 1830.

oughly native as they appear, may have been the property of races other than the prehistoric Porto Rican.

Of the three methods of treating the subject, the archeological, which is followed in the main in this report, also offers a good opportunity for original work; but data are drawn from historical and ethnographical sources to give the memoir a more comprehensive character, and are introduced when necessary to interpret the meaning of archeological objects.

PHYSICAL FEATURES OF PORTO RICO

The culture of a people is largely determined by its environment. The climate, fauna, flora, geology, and other physical conditions are important elements of this environment. Isolation, with consequent freedom from attack of foes, by which pure blood is retained for a considerable time, develops characteristic cultures in different parts of the world which vary with physiographical conditions. A brief description of the physical features of Porto Rico naturally precedes, therefore, a study of the culture of its aboriginal inhabitants.

Porto Rico, the smallest of the Greater Antilles, is situated in the Tropics, between North and South America. Its greatest length from east to west is a little more than 100 miles and its width about 36, the area being approximately 3,600 square miles.[a] There are no islands near Porto Rico in the Atlantic ocean on the north, and the watery waste of the Caribbean sea separates it from South America on the south, so that access from either direction implies extensive knowledge of ocean navigation. Near its eastern end begins the Lesser Antilles, a chain of islands, one almost in sight of another, extending southward to the mouth of the Orinoco, in Venezuela. On the west a comparatively narrow strait separates Porto Rico from Haiti, which in turn lies not far from Cuba. In short, the island of Porto Rico may be said to be situated midway in the chain of islands connecting Florida and Venezuela.

A chain of mountains, culminating at an altitude of about four thousand feet in the Yunque at the eastern end, crosses the island from east to west. These mountains are formed in part of calcareous rock, and contain many caves. On the north and south sides of the mountainous backbone there are small parallel ranges of rounded hills, skirted by low land along the coasts. The shores have a few good harbors, into which flow several rivers and lagoons that offer favorable places for that peculiar fluviatile culture characteristic of people like those who live on the delta at the mouth of the Orinoco and around

[a] W. M. Elliott, Report of the Commissioner of the Interior for Porto Rico to the Secretary of the Interior, Washington, 1900.

See also Manuel Ubeda y Delgado, Isla de Puerto Rico, Estudio Histórico-geográfico, Puerto Rico, 1878.

Lake Maracaibo. The caves along the north coast are large, and the beaches afford good landings and camping resorts, the sites of the latter being generally indicated by shell heaps of some size.

The winter is never cold in Porto Rico. The trees and plants yield edible food throughout the year, removing one stimulus to store a food supply that is felt by the primitive agriculturist of the Temperate zones. An inducement to economy of food and to a development of high culture thereby is rarely found in the Tropics.[a] Vegetable food is available at all times. There are seasons for planting and harvesting, but no arid deserts to disappoint the agriculturist. The land is well watered, inviting tillage at all times. The temperature in Porto Rico never falls to a point where men need firewood to keep them warm or closed houses to shield them from cold. The only shelter one requires is a protection from rain and sun.

Both the fauna and the flora of the West Indies are South American in their affinities, and animals and plants such as belong to that part of the continent served the natives for food. Of indigenous animals there may be mentioned the agouti, utia, bats, and various lizards, as the iguanas. It is not saying too much to affirm that the majority of large indigenous animals capable of being utilized as food by the natives were derived from South America. The same statement applies to native plants and trees which served for food, raiment, houses, and canoes, and to those that furnished fibers. Among others may be mentioned maize, manioc, yams, potatoes, cotton, various palms and other woods, like the ceiba, and numerous native tree fruits.

Large mammals capable of domestication were wanting and a supply of food animals adequate to support a great population did not exist. The marine fauna of Porto Rico available for economic purposes was large. The manatee was an inhabitant of the lagoons and river mouths. Many edible fishes lived near the shore and in the rivers, and the lagoons abounded in mollusks, crabs, and turtles, tempting to a fisherman's life. In many places along the shore there are deposits of shells and fragments of ollas and other broken pieces of pottery mixed with bones of birds and fishes. The greatest of these deposits, according to Doctor Stahl[b] measuring more than 2 meters in height, is at the Cueva de las Golondrinas, near the mouth of the Rio Manati. The contents of these shell heaps imply that mollusks, birds, and fishes constituted a considerable part of the food of the people inhabiting the coast.

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[a] It must, however, be remembered that the highest prehistoric culture of America developed within the Tropics.

[b] Augustin Stahl, Los Indios Borinqueños, Estudios Etnográficos, p. 1–206, pl. I–IV, Puerto Rico. 1889. Doctor Stahl's collection, a catalogue of which is given in this important work, is now in the Museum of Natural History, New York.

PRECOLUMBIAN POPULATION

The Europeans who first landed on the shores of Porto Rico reported the island to be densely peopled. The early Spanish voyagers state that the population was distributed over the whole island, but that it was thickly settled in the littoral tracts and along the banks of the rivers. It has been estimated that the population was 200,000,[a] probably too large a number, though a conservative estimate would still make prehistoric Porto Rico a populous island.

According to Oviedo,[b] the cacique Guarionex led 3,000 warriors to the assault of the Spanish town founded by Sotomayor on the western end of the island. Supposing that the women, children, and other nonbelligerents of this territory were not included in this enumeration, a conservative estimate would make the population of this end of the island in the years 1510 and 1511 at least 10,000. Considering that this command of Guarionex was drawn, not from the whole island, but only from the western end, it is reasonable to conclude that if the remaining population of Porto Rico were equally dense the number of natives amounted to at least 30,000.

Frequent wars and epidemics, however, rapidly decimated them after their discovery, while a system of repartimientos, or division of them as slaves among the Spaniards, speedily diminished still further the number of natives, so that the race was practically exterminated in a few years. Before their extinction Indians were brought to Porto Rico from neighboring islands,[c] and Kongo Africans were introduced from across the ocean, so that it is impossible to estimate with precision the size of the aboriginal population at the time the repartimientos were made.

It is said that 5,500 Indians were divided among Europeans,[d] but this number could hardly have included the whole native population and takes no account of those in the mountains who had not been conquered.

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[a] Iñigo (see his Historia, cited in footnote, p. 20) estimates the number as 600,000, which Señor Brau, the best authority on the subject, reduces to 16,000.

[b] Gonzalo Fernández de Oviedo y Valdez, Historia General y Natural de las Indias. Oviedo was born in Madrid in 1478. After having been a page of Prince Juan, son of Ferdinand and Isabella, he lived in America in different capacities, and was ultimately appointed first historiographer of the Indies. His Historia General y Natural de las Indias was printed in 50 volumes, the first 19 of which were first published in 1535. In 1547 he reprinted this first part in Valladolid, adding another volume called Naufragios. Another edition was published in 1557. This work is of the greatest importance for the study of the aborigines of the West Indies, as Oviedo personally saw the natives whom he describes. Portions of his history, including book 16 and certain chapters of other books pertaining to Porto Rico, were reprinted in 1854 by Tapia y Rivera, Biblioteca de Puerto Rico que contiene varios documentos de los siglos XV, XVI, XVII, y XVIII, p. 1-587, and index, 1-14, Puerto Rico, 1854.

[c] Gómara says that in twenty years the Spaniards took into slavery from the Lucayan (Bahama) islands 40,000 persons, representing to them that they were taking them to Paradise.

[d] R. A. Van Middeldyk, in his History of Porto Rico (New York, 1903), says that this number was "certified by Sancho Velásquez, the judge appointed in 1515 to rectify the distribution made by Ceron and Moscoso, and by Captain Melarejo in his memorial drawn up in 1582."

Señor Brau,[a] the most reliable historian of the island, gives the following data regarding the distribution of Indians in 1511–12 after the affair at Jacueco, taken from the Muñoz documents: Haciendas of their royal highnesses, 500; Baltasar de Castro, the factor, 200; Miguel Diaz, the chief constable, 200; Juan Ceron, the major, 150; Diego Morales, bachelor at law, 150; Amador de Lares, 150; Louis Sotomayor, 100; Miguel Diaz Daux, factor, 200; municipal council, 100; Sebastian de la Gama, 90; Gil de Malpartida, 70; Juan Bono (a merchant), 70; Juan Velasquez, 70; Antonio de Rivadeneya, 60; Gracian Cansino, 60; Louis de Apueyo, 60; the apothecary, 50; Francisco Cereceda, 50; to 40 other individuals (40 each), 1,600; distributed in 1509–10 to 9 persons, 1,060; total, 5,100. The figures given in the enumeration of slaves sometimes include those introduced from other islands. Thus, in 1514 the cacique Jamaica Arecibo, with 200 Indians, was assigned to Lope Conchillos, but how many of the latter were natives of Porto Rico does not appear. Arecibo himself was from Jamaica. It is impossible to arrive at any very close estimate of the population of prehistoric Porto Rico from Spanish accounts, but 30,000 is probably as close an estimate as can be made from the available data.

PRESENT DESCENDANTS OF THE PORTO RICAN INDIANS

The visits made by the author were too limited to determine what parts of the island are best suited for a study of the purest survivals of the former race, but marked Indian features were casually observed everywhere, especially in the isolated mountainous regions.

The lofty mountain called El Yunque is reputed to have been the home of the last cacique, and the inhabitants in its neighborhood are certainly among the most primitive on the island. This region has been visited by Señor Federico Vall y Spinosa, who has published in one of the San Juan daily papers a legend of aboriginal character obtained on his visit. There is in this part of the island a range of mountains called the Carib mountains that may have received its name from the fact that Carib were once numerous at this end of the island. The inhabitants in this region still preserve Indian features to a marked degree, but whether Borinqueño or Carib is not evident.

It is probable that the entire mountainous interior of Porto Rico, from the eastern to the western end, was the last refuge of the aboriginal Indian population, and the names of the various caciques that are applied to sections of the mountain chain support this belief. The

[a] Salvador Brau, Puerto Rico y su Historia; investigaciones criticas, 2d ed., p. 1–404, Valencia, 1894. This important work contains a copy of the Columbus letter sent from Lisbon to the Catholic kings on his return from his first voyage, also a description of "Boriquen" from Istoria de las Indias con la conquista de Mexico, 1552, by Francisco Lopez de Gómara, from the original in the library of Beato Juan de Rivera, Colegio del Corpus Cristi, Valencia. See also Puerto Rico en Sevilla, Puerto Rico, 1896; and History of Porto Rico, New York, 1903.

maps given in the late census report (1899)[a] show that the negro population predominates over the white in the eastern half of the island. It is important to determine how much admixture of Indian blood by intermarriage has taken place in the two regions.

Many of the inhabitants of a mountainous section called Indiera, at the western end of the island, also have pronounced Indian features, and we may expect to find in that region many legends, curious customs, and words directly traceable to the aborigines. Indiera lies in the mountains between the tributaries of the Guabano river, called Prietas and Blanco, south of Lares and east of Marias. The name Indiera, Indian land, is significant, and many archeological objects have been found in this region. Several contractors who have employed large numbers of laborers in building roads have noticed the predominance of Indian features in the mountains near Utuado and Comerio, where careful investigation may reveal individuals with comparatively pure Indian blood.

It must be borne in mind, however, that indications of Indian ancestry in these regions are not necessarily evidences that those bearing them are descendants of native aborigines, for in the early history of the island, as is stated above, Indians were brought to Porto Rico from Mexico, Cuba, Jamaica, Haiti, the Bahamas, and the Lesser Antilles. The Carib were introduced as slaves, and they also had left many of their descendants in Porto Rico before the advent of the Spaniard. So great was this admixture of Carib blood that Oviedo speaks of Porto Rico as one of the Carib islands.

The distinctive aboriginal culture was practically destroyed before these Indian slaves were introduced, so that we may say that it disappeared immediately following the discovery of the island. But no people can be suddenly destroyed in this way; it may lose its distinct culture but its blood is not so easily exterminated. When the natives died out the new peoples from the Bahamas and other islands, negroes from various parts of Africa, and other races, replaced them, but not before considerable intermixture had resulted.

The Spaniards had children by Indian women to a limited extent, the blacks intermarried with them, and the Indians introduced became fathers of children born of Porto Rican women, so that there exist on the island to-day survivals of the crossing of several different races.

With this amalgamation of races came a mingling of as many forms of culture and the introduction of customs foreign to the aboriginal life of the island. Thus it has come about that, side by side with primitive American customs, there survive those whose parentage is traceable to Spanish, African, and other foreign sources. The folklore of Spain exists side by side or mingled with that of Africa and of the various West Indian islands from which this composite race sprang.

[a] Lieut. Col. J. P. Sanger, Report on the Census of Porto Rico, p. 1–417, Washington, D. C., 1899.

To separate that which is characteristically Porto Rican from later introductions thus becomes no easy task—almost impossible, indeed. Fortunately, it is possible to bring to our aid, in a solution of this problem, comparative ethnology and archeology, which teach that the Borinquen Indians were of the same race as those of the other West Indian islands. From a study of the surviving Indians in these other islands we can determine the indigenous by eliminating the introduced. Historical accounts may also help us in the same direction, but we should always bear in mind that evidences of Indian bodily features in modern inhabitants of Porto Rico, while suggestive, are not necessarily indications of the survival of prehistoric peoples whose ancestors lived on the island at the time of its discovery.

RACE AND KINSHIP

Among the first words heard by the comrades of Columbus when they landed in Guadeloupe were "*Taino! taino!*" "Peace! peace!" or "We are friends." The designation "*taino*" has been used by several writers as a characteristic name for the Antillean race. Since it is both significant and euphonious, it may be adopted as a convenient substitute for the adjective "Antillean" to designate a cultural type. The author applies the term to the original sedentary people of the West Indies, as distinguished from the Carib, or any mixture of the two, such as is found in the southern islands and certain littoral regions of the Greater Antilles.

In a general way, the prehistoric Porto Rican aborigines may be said to have been a mixed Tainan race, closely related to the people of Haiti and Cuba, but considerably modified by Carib influences in the eastern sections of the island. Mona, the neighboring island on the west, now belonging to the United States, was once well populated by Indians, although at present (1903) it has only a solitary human occupant—a light-house keeper. This small island formerly had a mission and was inhabited by Tainans, while the natives of Vieques and Culebra, islands off the east coast, were Carib.

The Borinqueños, or aboriginal Porto Ricans, thus had affinities on the one side with Tainans of the neighboring island, Santo Domingo, and on the other with the insular Carib, whose outposts were the islands Culebra and Vieques. It should be borne in mind that the insular Carib differed somewhat in language, blood, and culture from those of the mainland of South America, since most of them were the offspring of Carib fathers and Tainan mothers, who were slaves. The captive Tainan women incorporated their arts in the Carib life, naturally developing a close similarity between the various mixed Carib and Tainan cultures. The resemblance of the prehistoric inhabitants of Porto Rico to the Tainans of Haiti and eastern Cuba was com-

mented upon by Las Casas and Oviedo, who declare that in customs and language these islanders were very much alike.

The accounts of the Indians of Haiti are more complete than those of the Porto Rican Indians, for the early writers generally made their homes on that island, and naturally were more familiar with its natives than with those of the islands on either side. It has been customary to fill out imperfect knowledge of the Porto Ricans by regarding them as identical with the Haitians, especially since Oviedo himself has stated that the culture of the two peoples was practically the same. The older writers recognized some differences. Oviedo remarks that, while the inhabitants of Porto Rico were essentially like the Haitians, they were unlike them in being archers who did not poison their arrows with herbs. He says that in their worship and in their dances (*areitos*) and ball games, in navigating canoes, in agriculture, fishing, and building houses and hammocks, in marriage customs, subjection to caciques, witchcraft, and in many other things the one people (Borinqueños) were very like the other (Haitians). One statement of Oviedo that should be emphasized as separating the Borinquen Indians from the people of the three other Greater Antilles is that they were more given to war and more adept in the use of Carib weapons, a characteristic that can be traced either to contact with the Carib or to a greater proportion of Carib blood, for the aborigines of Porto Rico were more closely related to the Carib than were the Tainan people of Cuba and Haiti.

At the time of the discovery of America the insular Carib possessed a culture resembling in many respects that of the Tainans and somewhat unlike that of the Carib of the continent of South America. These insular people were confined at that time to the chain of islands called the Lesser Antilles, extending from South America to Porto Rico. They made many raids on the peaceful inhabitants of the other islands, but, except in Porto Rico, their influence on the Greater Antilles was not sufficient to modify profoundly the existing culture. Apparently this Carib modification had replaced or submerged a previous culture on the Lesser Antilles, the Tainan men having been killed and their women appropriated as wives of the conquerors,[a] who left in their offspring a mixture of Carib blood with that of the peaceful islanders and produced corresponding modification of culture in the eastern part of Borinquen.

There is direct as well as indirect evidence that the population of the eastern end of the island of Porto Rico was somewhat different in blood from that of the western. The neighboring island Vieques, only a short distance away, was practically Carib, and hostile warriors from

[a] In this account of prehistoric Porto Rico the author includes the islands of Mona and Vieques, the former inhabited by Tainan Indians, the latter by true insular Carib. For differences in culture at the opposite ends of Cuba see his article on the Prehistoric Culture of Cuba, in *American Anthropologist*, VI, n. s., October-December, 1904.

it were continually raiding the adjacent coast of Porto Rico. As the marauders numbered many hundreds, and as their raids were frequent, it is natural that the people of this end of the island should have developed more warlike habits through constant affrays with this persistent enemy. It is probable that many of these Carib married Porto Rican women, settled on the island, and never returned to their former home.

On several maps of Porto Rico we find the name "Carib mountains" affixed to sierras in the east end of the island. This, like other place names, such as Guarabo, is of Carib derivation and points to Carib influences. Porto Rico itself was called a Carib island by several writers, and Porto Rican women whom the Carib took prisoners and made slaves had children of mixed Tainan and Carib blood. The two peoples were not continually hostile, for the chief of the Carib aided the Borinqueños in the battle of the Yauco river, a fact which would suggest kinship.

There is no indication in the early accounts that the Carib of Vieques assimilated with the western provinces, although they raided the Spanish settlements there, but that the inhabitants of eastern Porto Rico when discovered were partially Carib can hardly be questioned.

We have no definite information regarding the extent of prehistoric Carib raids on Porto Rico, but we may judge of their frequency by a few references to the Carib attacks after the Spaniards had made settlements on the island. In 1520, according to a letter from Baltazar de Castro,[a] 5 canoes of Carib, with 150 men, landed at the mouth of the Humacao, at the eastern end of the island, burned houses and killed several men, Spaniards and natives. In 1529, on the 18th of September, in the middle of the night, 8 great canoes of Carib entered the bay, or harbor, of San Juan, where they killed 3 negroes and caused great fear. In 1530 they made a descent with 500 men, in 11 canoes, on the eastern end of the island, capturing and killing several men and women and carrying off 25 negroes, who, it is supposed, were afterward eaten.

In the reprisals against Vieques 15 or 16 Carib villages, each averaging 20 houses, were burned and 300 persons were killed, 18 large and 20 small canoes being destroyed. In 1564 the Carib made a fierce attack on the pueblo Loisa and other places on the north coast of Porto Rico.

BODILY CHARACTERISTICS

Writers who followed Oviedo appear to have used his account indiscriminately in their descriptions of the mental and bodily characteristics of the islanders of Porto Rico, Haiti, and Cuba. Among these may be mentioned Iñigo, Charlevoix, and perhaps Gómara. Fray Iñigo says that the Indians of Porto Rico were copper-colored, short

[a] See Iñigo's Historia, cited in footnote, p. 20.

in stature, well proportioned, with flat noses, wide nostrils, bad teeth, and a skull flat in front and rear, it being pressed into shape at the time of their birth, and that they had long, thick, black, coarse hair.

Charlevoix says:[a] "These islanders (Haitians) were of medium height, but well shapen, their color a reddish, the face being gross and hideous, their nostrils very open, the hair on the head long, but absent on the rest of the body, hardly any forehead, the teeth dirty and black, and an indescribable fierceness of the eyes. The color of the skin was partly due to a constant application of pigment and the heat of the sun, to which their naked bodies were always exposed. They flattened their heads by art, thus reducing the size of their forehead, which pleased them greatly. To do this their mothers took care to hold them tightly pressed between their hands or between two little boards, which, by degrees, flattened the head, whereby the skull hardened in a molded shape. Their skulls were so thick that the Spaniards often broke their swords in hitting them. It is easy to see that this operation changed the physiognomy entirely and contributed much to their ferocious appearance."

Francisco Thamara,[b] who wrote in 1556, says of the inhabitants of the West Indies, "lately discovered," that "the natives have a chestnut color and are of less stature than the Spaniards. They have narrow foreheads, made so artificially by pressure on the sides of the head, so that the eyes protrude. The nostrils are wide open and the whites of their eyes somewhat pronounced. They have no beards, and their bodies for the most part are hairless. They have straight black hair, fine and well cared for, but do not have good teeth, on account of the cooked bread and roots which they eat."

No well-authenticated skulls and skeletons from prehistoric Porto Rico have yet been described, and but few skeletal remains have been found in the adjacent islands, Cuba, Haiti, and Jamaica.[c] Until material of this kind is available it is not possible to form any definite ideas on this subject. According to Bachiller y Morales, human bones have been found by Andres Stanislas in Porto Rico, and the author has been informed that human skulls and bones, exhumed from caves

[a] Pierre François Xavier de Charlevoix, Histoire de l'Isle Espagnole ou de S. Domingue, I, II, Paris, 1730. This valuable account of the neighboring island of Española or Santo Domingo, now Haiti, said to have been written by Pere, is one of the most important works on the early history and the aborigines of Santo Domingo.

[b] Libro de las Costvmbres de Todas las Gentes del Mvndo y de las Indias, Tradvzido y Copilado por el Bachiller Francisco Thamara Cathedatico de Cadis, p. 1-350, Antwerp, 1556. This rare book is mainly a compilation from Oviedo in American matters, dealing especially with the customs of the aborigines of Española. It has much value, considering the probability that the author obtained information at first hand from those who had lately been in the West Indies, and contains some material not elsewhere mentioned.

[c] Señor Neumann mentions skulls found in the Cueva del Consejo by Hjalmarson and carried to the museum of Stockholm. He mentions also the finding of others by Pinart. The author has found several fragments of Indian skulls in his excavations near Utuado, but these are too incomplete for description.

and burial mounds in the region about Arecibo, have been carried to Europe: it is hoped that, if descriptions of them have not yet appeared, they will soon be published.

While osteological data from Porto Rico are very scanty, we are not wholly ignorant of Borinquen somatology. The several skulls from Cuba, Haiti, and the Bahamas that have been described afford a good idea of the craniological characters of the same race.[a]

Several aboriginal skulls have been discovered and described by Poey, Montoné, and other Cuban somatologists. Some of these crania now in the University Museum and the Royal Academy at Havana[b] are incrusted with limestone, and bear every evidence of great age. Certain Lucayan skulls examined by Prof. W. K. Brooks[c] "are artificially flattened to so great an extent that the distinction between the frontal and the coronal portion of the frontal bone is obliterated, the male skulls being somewhat more flattened than the female." The probabilities are that the Porto Rican Indian crania will be found to resemble those of the other islanders, the essential measurements of which are recorded in the works mentioned. The accompanying illustration (plate I) represents two aboriginal skulls from the eastern end of Haiti.

As the island Vieques and possibly Culebra, both of which are now parts of our West Indian colony, were inhabited by Carib, and as Carib features were prominent in the eastern parts of Porto Rico, a description of the bodily features of these Indians naturally interests the student of the anthropology of our island possessions. Davies in 1666 gave the following account of the physical features of these Indians: "The Caribbeans are a handsome, well-shaped people, of a smiling countenance, middle stature, having broad shoulders and high buttocks; . . . their mouths are not over large, and their teeth are perfectly white and close. True it is, their complexion is of an olive color, naturally; their foreheads and noses are flat, not naturally, but by artifice, for their mothers crush them down at their birth, as also during the time they suckle them, imagining it a kind of beauty and perfection. They have large and thick feet, because they go barefoot, but they are, withal, so hard that they defy woods and rocks. . . . They are great lovers of cleanliness, bathing every day; are generous and hospitable. . . . Like many natives, they eradicate the beard

[a] A. C. Haddon, Note on the Craniology of the Aborigines of Jamaica. *Journal of the Institute of Jamaica*, II, no. 4, p. 23, 24, July, 1897. Sir William H. Flower, On Recently Discovered Remains of the Aboriginal Inhabitants of Jamaica. *Nature*, Oct. 17, 1895.

Señor Imbert has kindly sent the author a photograph of undescribed prehistoric skulls from Haiti. (Plate I.)

[b] "These skulls, of which several were obtained," writes Ober, "are brachycephalic, having a cephalic index of about 90, one of them showing 93.75, another 90, and all with more or less pronounced frontal depressions, artificially produced."

[c] On the Lucayan Indians. *Memoirs of National Academy of Sciences*, 10th Memoir, IV, 215–223. Washington, D. C., 1889.

and the hair on other parts of the body. . . . They compressed the skulls of the new-born infants. . . . dyeing their bodies with *roucou*, which makes them red all over."[a]

MENTAL AND MORAL CHARACTERISTICS

Natives of the different islands, and even those of different parts of the same island, differed somewhat in disposition and character. Some were peaceful and guileless and received the Spaniards with feelings of reverence, believing they had descended from heaven. In other islands they fled, and in some they contested the landing of Columbus. In certain parts of Haiti, as in the province of Ciguex, the whole territory was devastated and the people were almost exterminated before they were subjugated. In the Cibao and Higuez provinces likewise the natives resisted with desperation. Henriquillo, the "last cacique" of Santo Domingo, was never subdued, but was given the pueblo Boya, north of the capital, where the descendants of the early natives still live. The aboriginal Porto Ricans also fought bravely for the possession of their island until overpowered by their foes.

Of the mental and moral traits of the ancient Borinqueños we may form a good judgment from early records. A sense of justice and traits of heroism, admirable in any race, were strong among these people and widely spread. No one who reads the Spanish records, which can hardly be called prejudiced in favor of the aborigines, can deny that these Indians were both hospitable and generous. Regarding the Europeans as a race of supernatural beings, they received them with kindness, until forced to do otherwise in order to defend their own lives and those of their families. Several accounts tell how theft was regarded as a crime and severely punished. If we find their lives sometimes spoken of as bestial we must bear in mind that these statements come from people who enslaved them. They were certainly not more cruel than those who oppressed them, nor less truthful than those who, under false promises, transported them from their homes into slavery. Benzoni states that some of the natives were called great thieves by the Spaniards, but he regarded the Indians in the main as honest. Columbus says that they stole idols (*zemis*) from one another; Oviedo declares that thieves were spitted on trees and left to die. The girls were not regarded as chaste by the Europeans, some of whom could hardly be called chaste themselves if judged by their treatment of Indian women. Incest was unknown, but men were sometimes used to gratify lust, in which case they were dressed as women.

Many of the natives exhibited fine traits of character, no one more

[a] John Davies, History of the Caribby Islands, pp. 1-35, London, 1666. For the character of this work see Buckingham Smith, Winsor, Field, and Mooney (Myths of the Cherokee, *19th Report of Bureau of American Ethnology*, p. 202). According to Field (Indian Vocabulary, p. 95), "It is a nearly faithful translation of H. Rochefort's Histoire Naturelle et Morale des Iles Antille de l'Amerique, Rotterdam, 1658." Field says of this work that it is "fictitious in every part which was not purloined from authors whose knowledge furnished him with all in his treatise which was true."

so than Aguebana the elder, the cacique of the western end of the island. This chief was a friend of Ponce and apparently a fine type of Indian. His animosity against the Spaniards was not so great as that of his brother, who a year or two after the first landing instigated the uprising which destroyed the Spanish settlement. No one can read the story of the Haitian chief Caonabo, of his perfidious capture, and later of his bearing before Columbus, without admiration, for such a man was cast in the same mold as those who are accounted heroes among all races.

Francisco Thamara, who probably never visited America, and whose clerical office would lead us to expect milder language, says of the West Indian: "The race is vicious, hateful, lazy, cowardly, vile, of bad inclinations, liars, ungrateful, of short memories, no firmness, idolatrous, and given to abominable customs." This terrible indictment of a whole race, published in 1554, after admitting that there are good Indians, was not shared by some other writers. A brighter picture is shown in the exalted sentiments which Peter Martyr[a] ascribes to the aged Cuban councilor in his conversation with Columbus, given below; the reader may agree with the author that they contain much which is foreign to men of the state of culture of the Antilleans:

I have been advised, most mighty prince, that you have of late with great power subdued many lands and regions heretofore unknown to you, and have brought great fear on all the people and inhabitants thereof, which good fortune you will bear with less insolency if you remember that the souls of men have two journeys after they are departed from this body; the one foul and dark, prepared for such as are injurious and cruel to mankind; the other pleasant and delightful, ordained for those who in their lifetime loved peace and quietness. If, therefore, you acknowledge yourself to be mortal, and consider that every man shall receive just rewards or punishments for such things as he hath done in this life, you will wrongfully hurt no man.

Bernaldez, giving a somewhat different version, but still full of exalted sentiments, writes, in substance, as follows:[b]

He had known how the admiral was going about exploring all the islands in these parts and the continent (Cuba), and his being on the continent was known to them. He told the admiral that he must not be vainglorious because all people were afraid of him, for that he was mortal, like men; and he began by words and by signs to explain how men were born naked, and how they had an immortal soul, and that when any member was diseased it was the soul that felt the pain; that at the time of death, and their separation from the body, these souls felt very great pain, and that they went to the King of the heavens and into the abyss of the earth according to the good or evil they had done and brought in the world.

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[a] The Famous Historie of the Indies: Declaring the Adventures of the Spaniards, which have conquered those countries, with Varietie of Relations, of the Religions, Laws, Governments, Manners, Ceremonies, Customs, Rites, Wars and Funerals of the People; Comprised into sundry decads, set forth in print by Mr Hakluyt, and now published by L. M. Gent, 2d ed., London, 1628.

See also Nicolo Scillacio (1494 or 1495). This writer took his material almost wholly from the letters of Guillermo Coma. English translation by Rev. John Mulligan, New York, 1859.

[b] Both Peter Martyr's and Bernaldez's interpretation of the "aged councilor's" words are highly colored with their own thoughts, showing, possibly, as much prejudice in his favor as Thamara showed adverse prejudice in his indictment of the whole race.

GOVERNMENT

In the social organization of the aboriginal West Indians there was a clan chief, called by the Spaniards a cacique, who exercised the function of leader in peace and war and often served also as priest. The political was closely knit together with the religious leadership, and the caciques apparently performed both functions. The word cacique was applied to any leader or chief of the Indians, being used in an indefinite way by the early Spaniards. Authority over the Indians, both secular and religious, was vested in chiefs of apparently different grades, as heads of clans, chiefs of phratries, rulers of provinces, and even, it is said, a king, supreme ruler of the whole island. The names of several prominent caciques of Porto Rico are mentioned in the early history of the island.

This office was generally inherited by the eldest son, but in case a cacique had no sons it passed not to his brother's but to his sister's son. If the office were inherited from the mother, the nearest relative of the mother received it, following the matriarchal right of succession. Women caciques were recognized in both Haiti and Porto Rico, but their true status in Antillean sociology, in all its details, is not known. The sister of a cacique sometimes received the office directly from her brother, but this devolution of power was apparently unusual.

Although the Porto Rican Indians had a number of chiefs, or caciques, of different grades of power, we have very limited knowledge of the so-called provinces of the island over which each ruled. We do know that each of the islands was probably divided into small caciquedoms, controlled by powerful caciques, and each province was subdivided into smaller divisions, comprising the inhabitants of valleys and isolated pueblos, governed by subordinates. A cacique called Aguebana is commonly said to have been chief of the whole island of Porto Rico, but of his supreme power there is some question.

As a rule each village seems to have had a chieftain or patriarchal head of the clans composing it, whose house was larger than the other eouses and contained the idols belonging to the families. The cacique, his numerous wives, and their children, brothers, sisters, and other kindred were a considerable population, often forming a whole village. In addition to the household of the chief, consisting of his wives and immediate relations, a prehistoric village ordinarily contained also men, women, and children of more distant kinship. Such a pueblo, for instance the village seen by Columbus on his second voyage and described by Muñoz, sometimes bore the same name as the cacique.[a]

[a] This pueblo was probably situated near Aguadilla. It is called by Stahl, whose error the present author has elsewhere repeated, the pueblo of Aguebana; but, as Brau has shown, there is no proof that Muñoz referred to the pueblo of this cacique. For another identification of the landing place of Columbus on his second voyage see Padre José Maria Nazario's Guayanilla y la Historia de Puerto Rico, Ponce, 1893 See also Manuel Maria Sarnia, El Desembarco de Colon in Puerto Rico, Mayaguez, 1894.

The fact that each clan and each subdivision of a clan had its chief, whom, for want of a better designation, the Spaniards sometimes called the cacique, partially explains the variation in the number of caciques that different writers ascribe to the island.

Some of the more energetic of these clan chiefs had greater influence than others; but as the Spanish writers did not understand the social organization of the island, they supposed that it was divided into provinces, each ruled over by a special ruler who was subordinate to a king, or supreme cacique. Leagues of more or less strength were undoubtedly formed by the minor caciques for special purposes, such as resistance to a common foe, but such a union was loose and its organization feeble. In their resistance to the Spaniards and Carib each cacique with his immediate followers acted practically on his own responsibility, independently fighting his own battles, except in one or two rare instances, where there was a weak union.

It is evident that a system of vassalage among chiefs was developed in all sections of the island, a kind of blood kinship by adoption. One of the most interesting methods of showing fealty and union between caciques was the custom of changing names, the participants becoming blood kin, called *nataios*. We have several recorded instances in early writings where Spaniards and caciques practised this custom of name changing, the European taking the name of the Indian, and vice versa. For instance, Ponce de Leon, in order to cement his friendship with the natives, took the name of Aguebana from their chief, who in turn received that of Ponce, by which name he is known in early writings. The name of the cacique's mother was changed to the Spanish Doña Inez, and his brother took the name of a captain in Ponce de Leon's company. This change of name, accompanied with ceremonies, was a symbol of continued friendship and was supposed to make the participants allies for all time. With the natives it was seriously respected, but among the Spaniards it was too often disregarded.

The caciques were distinguished from their people by their dress and adornments. According to Las Casas the Haitian men and women of the better class wore earrings as large as bracelets, metal ornaments in their noses, and moon-shaped pendants on their breasts. When they could afford it all these adornments were made of gold. They were accustomed to wear their hair long, tied in a knot on the forehead or bunched on the back of the head. They sometimes put crowns or garlands on their heads and bracelets or plates of fine gold on their ankles and wrists, and had ornaments in the form of strings of fish bones and precious stones. The caciques wore, as a symbol of their rank, suspended from the neck and hanging down on the breast, a gold pendant called a *guarin*.

In war the men donned all their jewelry and painted their bodies red with a vegetable dye called *bifa*. At this time also they wore

amulets—small images representing idols—on their foreheads. Those in the foremost rank were armed with stone-headed lances or wooden spears, the points of which were hardened by fire. They carried clubs and bows and arrows, and were led into battle by some of their number who blew horns made of large conch shells. Although preferring a life of peace, they were courageous and, when necessary, willing to die for their homes and native land.

Bernaldez has given a very good account of the dress and characteristic regalia of a Cuban cacique during a state visit paid to Columbus:

> The cacique wore suspended from his neck a trinket made of copper, which is brought from a neighboring island.[a] . . . He wore a string of marble beads . . . and on his head a large open crown[b] of very small green and red stones disposed in order and intermixed with larger white stones so as to look very well. He had suspended over his forehead a large jewel [probably a frontal amulet], and from his ears hung two large plates of gold, with rings of very small beads; although naked, he had a girdle[c] of the same workmanship as the crown, all the rest of the body being uncovered.

The dress of the wife of the Cuban cacique, who came to see the Europeans at the same time, is thus described by Bernaldez:

> His wife was adorned in a similar manner, but was naked, except so much of her person as was covered by a bit of cotton not larger than an orange leaf. She wore upon her arms, just below the shoulders, a roll of cotton like the sleeves of the ancient French doublets, and another similar roll, but larger, on each leg below the knee—like the anklets of the Moorish women. The older and more beautiful of the daughters was entirely naked, wearing only a girdle of stones of a single color, black and very small, from which hung something, of the shape of an ivy leaf, of green and red[d] stones embroidered upon cotton cloth.

POLITICAL DIVISIONS

As already stated, there existed in prehistoric Borinquen a number of provinces, or caciquedoms, over each of which ruled a cacique, with subordinate chiefs, also called caciques, who were heads of families, or allied *nataios*, composed of their blood kindred, and their slaves and dependents. The geographical position of some of these provinces is shown in a general way, by the names applied to mountains on old maps, and these names are generally the same as those of caciques.

The foremost caciques of the island of Porto Rico are known as Aguebana (Agueynaba)[e] the First and Aguebana the Second, two

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[a] The ornament, as above stated, was usually of gold and was called a *guarin*.

[b] To Columbus was later given one of these crowns, which he carried to Spain.

[c] We find these girdles repeatedly mentioned in early accounts, where it is said that they were so highly prized that they were regarded as a worthy present for Columbus. In a way, this object may be compared with the wampum of the North American Indians, but there is no reason to believe that the West Indians regarded it as the Iroquois and other nations of North America did wampum. Among other ornaments worn by the Indians should be mentioned necklaces of living fireflies, which the natives called *cocuya*, a name still current in the island.

[d] Possibly the red seeds now used in Porto Rico for necklaces.

[e] The prefix *a* in the name of this cacique, as in that of the mountains, is often dropped.

brothers who figure conspicuously in the early history of the conquest of the island. Their territory extended along the southern coast of the island from the Coamo, or Yauco, river to the Jacaque, or Xacaque, comprising approximately the land from the bay of Guanica to the present village of Juana Diaz. It included not only the land along the southern coast but also the mountainous area that bears on early maps the names Guebana or Xacagua. Their province, following the general law, bore the name of the ruler.

When Ponce de Leon first visited Porto Rico he landed in the territory of Aguebana the First, who received him hospitably, showing him the country and the different rivers of the island. Ponce, following an Indian custom above mentioned, exchanged names with Aguebana, the Spaniard giving the name Doña Inez to the native's mother, and Don Francisco to his father. Ponce also showed his esteem for a brother of the cacique by giving him the name Luis de Anasco. The mother of Aguebana was friendly to the whites and gave her son good advice, which he dutifully followed, leading Oviedo to say that had these two lived there would have been no trouble with the Indians. When Ponce returned to the island in the following year he found that his friend Aguebana the First had died and his brother had inherited the office of cacique. But the character of this brother was less peaceful. Possibly he may have been exasperated by the wrongs enforced upon him and for this reason resisted the encroachments of the Spaniards on his island.

In the division of natives Aguebana the Second was given to Christopher Sotomayor, who came to Borinquen with Ponce on his second visit and founded a Spanish colony near Guanica. This settlement was situated in Aguebana's territory, but the colonists were soon obliged to abandon it on account of mosquitoes and move to the northwest coast, near where Aguada now stands. At first all went well and Aguebana the Second exchanged names with Christopher Sotomayor and the former's sister became the mistress, although the cacique may have regarded her as the wife, of the Spaniard.

No sooner had the settlement been made in the island than trouble began with the Indians, and as time went on the conditions became such that the latter rose against the Spaniards. Oviedo, who has given the Spanish version of the causes which brought about the trouble, blames the natives, and has recorded some of the worst acts of the Indians leading up to it, but anyone can read between the lines that the deeds of the cacique were retaliations for provocations which drove him to hostility.

Sotomayor was informed by his mistress that her brother was hostile and intended to kill him, burn his settlement, and drive his colonists out of the island. Apparently not much faith was put in this warning until it was learned, shortly afterward, that the Indians had sent out invitations to a war dance. It was customary for the natives

in these war dances, called *areitos*, to reveal the purpose of the war and to enact scenes characteristic of such conflicts. Knowing this custom, and having been told of the invitation, Sotomayor sent a spy to discover what was to happen. At this point appears Juan Gonzales, called by Oviedo a servant (*criador*), by others a soldier of Sotomayor.

Gonzales attended the *areito*, disguised and painted as an Indian, took part in it, and, having learned the intention of Aguebana by seeing the events enacted in the ceremonial dramatization, returned to Sotomayor to confirm the report that the intention of the Indians was to kill him. Even then Sotomayor apparently was not wholly convinced of the unfriendly intentions of the natives, or possibly felt himself able to resist them if they made any hostile move. Followed by several of his men, he started for an Indian settlement in the neighborhood of the old Indian village. Juan Gonzales, who was one of the followers of Sotomayor, was overtaken by the hostiles and wounded by them. He escaped death by promising Aguebana to become his slave. But Aguebana pursued Sotomayor and killed him with his *macana*, or war club.

After slaying Sotomayor, however, Aguebana repented having spared Juan Gonzales and returned to kill him also, but this man had hidden in the woods, from which he ultimately escaped, making his way over the Xacagua mountains to a ranch called Coa, where he reported to the Spaniards settled at that place what had happened. Later Gonzales went to Caparra, the old settlement of San Juan, where Ponce then was, bearing to the governor news of the death of Sotomayor and of the plight of the latter's followers.

In his account of this event Oviedo says that Juan Gonzales thought he was at Utuo (Utuado) when he reached the ranch Coa (Toa Alta), but later remembered that Utuao[a] was in hostile territory, it being situated in the caciquedom of Guarionex, who at that time was on the war path with 3,000 warriors, intending to take part with Aguebana the Second in the destruction of Sotomayor's colony near Aguada.

The above-recorded event prompts one to more than a passing interest in Juan Gonzales. Who was he? Oviedo writes that Gonzales was very familiar with the Indian language, which is significant, for at the time when the tragedy above mentioned occurred the Spaniards had been in the western settlements or, indeed, on the island of Porto Rico, only about a year or two. The questions naturally arise how and where did he become a "good interpreter?" Where did he learn the language? It might be suggested that he had picked it up in Santo Domingo, but there are some other circumstances which may be mentioned as bearing on his nationality. When Aguebana the Second attempted to kill Gonzales before the death of Sotomayor, Gonzales begged for his life, promising that he would be the cacique's vassal.

[a] Utuao is evidently the site of the modern town or district Utuado.

It is incomprehensible that a Spanish soldier should have spoken thus to an Indian cacique or that a European would have been allowed to take part in an Indian *areito* undetected, especially one in which the plan of a campaign against Sotomayor was made known. Could Gonzales have disguised himself with paint at that time?

The flight of Juan Gonzales over the mountains implies a knowledge of the island which an Indian might have had, and on the old maps the range of mountains which Gonzales entered after he left the Xacagua range are called the Juan Gonzales or Toa[a] mountains. Most of the other great mountain chains are named after Indian caciques, but these mountains received their name from Juan Gonzales. It is generally agreed that he was a Spaniard, but that the rugged mountains through which he ran, wounded and exhausted, after the death of Sotomayor, bear the Spanish name of an Indian cacique. Additional information regarding Juan Gonzales's nativity and early career would be interesting.

Aguebana the Second was probably killed by Juan Ponce, a Spanish soldier, who is reported to have shot an unknown Indian wearing a cacique's badge, in a battle which occurred at the mouth of the Yauco river, on the southern side of Porto Rico. There was no way of determining, at the time of the deed, who this cacique was, but Aguebana was never heard of in subsequent hostilities against the Spaniards.

According to Las Casas, there was still another cacique named Aguebana, who lived on the neighboring island of Haiti. As his realm was situated at the end of that island or across the strait immediately opposite western Porto Rico, it is probable that he was related to Aguebana of Porto Rico. The identity of the two names implies similarity in the languages of the two islands.

After Sotomayor's death the settlement founded in the neighborhood of Culebrinas river was destroyed, and a new colony was started in the caciquedom of Aymamon, a name still attaching to the mountains of that territory. The chief whose name it bore, like Aguebana the Second, was hostile to the Spaniards, and in an account given of the event which immediately preceded the uprising against Sotomayor we find this record: The cacique Aymamon captured a boy 16 years old, son of Pedro Juarez, and tied him to a tree while a game of ball was going on. He offered the boy to the winner of the game as a prize, with permission to kill him in any way desired. A servant gave information to the father of his son's peril, and Salazar rushed to the aid of the youth and killed 300 of the assembled Indians. The chronicler Oviedo, who tells the story, has possibly exaggerated the number slain, but that many were killed is without doubt. From that time Salazar was regarded with mortal fear by all the natives, and his deed called for revenge on their part. Such an event would

[a] *Toa* means "a frog," also "mother" or "breasts;" there are two Porto Rican towns named, respectively, Toa Alta and Toa Baja. Certain three-pointed zemis are called *toati* by Señor Cambiaso.

naturally drive the Indians to war, but the darkest part of the whole story is that we have only the Spanish record to indicate the purpose of Aymamon in tying the boy to the post. Who shall prove that the cacique had any such design as the chronicler states?

Notwithstanding the slaughter of his subjects, Aymamon sought to make friendship with the settlers at Sotomayor, especially Salazar, and sent Indians to ask him to come to the cacique's ranch near Sotomayor, on the Culebrinas river. He stated that he wished to become a blood brother of the Spaniard and to change names with Salazar, believing that he could thereby obtain his friendship, possibly his magic. After Aymamon had taken the name great power was imputed to him, and for years the name Salazar was a terror among the Indians.

The northeastern part of the island formed a caciquedom called Loisa, from an Indian chieftainess who received this European name when she was converted to Christianity, shortly after the settlement of Caparra. She was killed by Carib from Vieques in a raid which they made into her territories under a chief named Guarabo, to avenge the death of his brother, Carimar, who had been killed by the Spaniards.

The province of Yagueca, a name now perpetuated in the name Mayaguez, was the territory of the chief Urayoan. It apparently included all the middle part of the western end of Porto Rico, from the Urayoan mountains to the sea on the east. The cacique Urayoan, called also Broyuan, is said to have adopted drastic measures to disprove the report circulated among the Indians that the Europeans were immortal. Having entertained a Spaniard named Salcedor, he afterward caused him to be carried to the river and drowned. The Spaniard not coming to life, the cacique summoned Indians to survey the corpse and see that the Spaniard was mortal like themselves.

The caciquedom of Guarionex lay in the mountains east of those of Aymamon and Urayoan, and west of the site of the present town Utuado, which was in his domain. Little seems to be recorded of this cacique except that he was of Carib extraction and that he marshaled 3,000 warriors and destroyed the pueblo of Sotomayor. The mountains west of Utuado are named Guarionex mountains on the older maps, probably from the former cacique of this region. The province over which he ruled was apparently known as Utuao, a name which survives in that of the present settlement Utuado.

There was also a cacique named Guarionex in Haiti, whose name is frequently mentioned in the early history of that island, but whether the Porto Rican Guarionex is the same as the Haitian is not known. This similarity in names of Haitian and Porto Rican caciques occurs frequently. Some caciques, as Caonabo, of Managua, are distinctly stated to have been of Carib descent. These facts show that in many instances Carib leaders became rulers over portions of the islands

which they conquered. Caciques of both Haiti and Porto Rico with the same names are often said to be of Carib descent.

The attack by Guarionex on the pueblo of Sotomayor took place on the night following the death of Sotomayor, and although the pueblo was ably defended by Salazar, hero of the event above recorded, he was forced to retire after astonishing the Indians with his feats of valor. The survivors went to Caparra, the first capital of Porto Rico, and there joined Ponce de Leon, the governor of the island.

A cacique called Mabodamaca ruled a province in the eastern end of the island, possibly Humacao, where a modern town of the same name now stands.

The Carib of Vieques assisted Aguebana the Second in his resistance to the Spaniards at the battle near the mouth of the Coayuco, and it is probable that Mabodamaca, who may have had Carib ancestors, invited the Carib to aid in that battle. Previous to the coming of the Spaniards the Carib had raided Porto Rico for many years, and the Borinqueños of the eastern end of the island had received a greater infusion of Carib blood than the natives of the western end. If Mabodamaca was a Carib chief he would naturally have enlisted his kindred, the Vieques Carib, against the Spaniards, as allies of his friends and relatives. The whole eastern extremity of Porto Rico had practically been conquered by the Carib from the Lesser Antilles, as the name of the mountains on older maps implies.

After having defeated the second Aguebana and his Carib allies at the mouth of the Coayuco river, Ponce heard through spies of an uprising at Humacao, where many Carib had joined the Borinqueños. As the Indians had divided into two parties Ponce sent Salazar with 600 men against Mabodamaca, who had separated from the others. The Spaniards in this encounter killed 150 of the enemy, including Mabodamaca.

Two caciques named Yuhubo or Juarebo (Guarabo) and Cacimar, said to be brothers, were Carib rulers of Vieques island. The latter was killed by the Spaniards in one of the Carib raids on Porto Rico. Subsequently his friends avenged his death a few miles from the present town of Carolina, at which time they also killed the famous dog called Becerrillo, which had been brought to Porto Rico from Santo Domingo when Ponce sought aid from the latter island against Aguebana the Second, and which the Indians much feared.

This account of the political divisions of prehistoric Porto Rico and of historical episodes in which caciques figured does not lay claim to be more than an outline sketch, for the subject has been given in great detail by many historians, among whom may be mentioned Iñigo Abbad,[a] Salvador Brau,[b] and Doctor Stahl.[c]

[a] Historia Geográfica, Civil y Natural de la Isla de San Juan Bautista de Puerto Rico, Puerto Rico, 1866.

[b] Puerto Rico y su Historia, Valencia, 1894.

[c] Los Indios Borinqueños, Estudios Etnográficos, Puerto Rico, 1889.

HOUSES

The houses of the aboriginal Porto Ricans were like those of the Haitians and not very different from the cabins of the poorer people of the island to-day, especially those in the mountains, where old types of construction still survive. Naturally modern cabins present many modifications, as the use of iron nails in fastening the beams, but the materials used in construction are practically the same, and the old architectural types are still followed in modern dwellings. As a rule these houses, as at the present day, were erected on hillocks, almost hidden by trees, and commonly remote from one another. Architectural modifications are necessarily greatest near the cities and towns, and on the outskirts of the cities, in the poorer quarters, there are generally rows of similar cabins of primitive construction, forming streets. Here the houses are constructed of modern building materials; their roofs are covered with tiles or sheets of metal from old oil cans, replacing the palm leaves, which are not there available for the purpose. But these houses, like those in the country, are frequently mounted on posts, with their floors raised from the ground, being universally destitute of cellars.

We have in the early Spanish writers several descriptions of the houses of the West Indian aborigines. The account of the habitations of the Haitians given by Oviedo, accompanied by pictures, applies equally well to the houses of the ancient Porto Ricans. It is stated by early writers that the natives lived in pueblos or villages situated along the shore or in the hills, as well as in isolated cabins scattered through the mountains.

Although no sufficient evidence has yet been presented to prove that the prehistoric people of Porto Rico lived in caves, many aboriginal relics occur in these places. The natives are said to have inhabited caverns after the advent of Europeans, and Oviedo speaks of certain people in the province of Gaucayarima, in Haiti, who lived in subterranean dwellings, declaring that they were ignorant of agriculture, subsisted on the fruits and roots which nature provided, built no houses, and had no other habitations. He regarded this race of true cave dwellers as the most savage in the island of Haiti. While the existence of cave dwellers in the neighboring islands, Cuba and Haiti, might lead to the conjecture that there were also cave people in Porto Rico, when Columbus discovered the island the majority of the inhabitants were not troglodytic, but lived in the open country and resorted to the numerous caves only for sepulture of the dead or for religious rites. If there were cave dwellers, we may justly regard them as survivors of the most archaic race that inhabited the island.

Muñoz[a] has given us a good description of one of the villages at the

[a] Juan Bautista Muñoz, Historia del Nuevo Mundo, Madrid, 1793.

western end of Porto Rico, discovered by Columbus during his second voyage. The houses composing this pueblo were, he says, arranged about a central inclosure or plaza, from which there extended to the shore a double row of palisades inclosing a passageway covered with boughs and ending in an elevated lookout near the seashore. This latter structure was larger and higher than the other houses and apparently circular in form.

Clusters of mounds are found in the neighborhood of the inclosures, surrounded by standing stones, called the *juegos de bola*, or ball courts, remains of many of which are still found in the interior of the island. These mounds may have been sites of houses arranged about the inclosures, and there may have been a central structure larger than and in form different from the smaller dwellings clustered about it. If this were true, each of the smaller cabins in these clusters was probably peopled by one clan or phratry, and the larger central house served as the temple where the idols and ceremonial objects were kept, and where the head of the clan, called the cacique, resided. There is good evidence that in every pueblo one house, different from the rest, was always set apart for religious purposes, and in this house idols and other paraphernalia of worship were always kept.

The other houses were habitations of the people, and were apparently of two forms, circular and rectangular, these types being constructed of similar material, so put together that they closely resembled each other in general character.

Herrera[a] thus describes the houses of the primitive inhabitants of Española, or Haiti:

> Each cacique has a house apart from those of the people, where there are certain figures of stone, wood, or painting worked in relief, which they call *Cemis*. In this house they do nothing but hold services to these *Cemis*, performing ceremonies and prayers which correspond to the worship in churches.
>
> Within this "temple" they have a small, well-made table (tabla), round in form, on which are placed certain powders with which they sprinkle the heads of the images with definite ceremonies, and with a cane of two branches, which they place in their nostrils, they snuff up this powder; the words they say no Spaniard understands. . . . They affix to these figures the names of their ancestors. . . . Certain Castilians, desiring to see the mysteries of their altars, went into one of these houses, and immediately the *Cemi* spoke in their tongue, from which deception they learned that the idol was artificially made, and the statue was hollow, from behind which there was a hollow cane extending to a corner of the "church," where a person was hidden. The responses were made by this person through the tube.

Oviedo gives a description of the architecture of the aboriginal houses of the Haitians, which probably applies to those of the natives

[a] Descripción de las Indias Occidentales, decade I, book iii, chap. 3, p. 67, Madrid, 1730. Antonio de Herrera, who was born in 1565 and died in 1625 at the age of 60 years, was appointed historiographer of the Indies by King Ferdinand II. His great work in the judgment of some writers is largely a translation of Las Casas, but he had access to Spanish archives, which gave it special value. See also Herrera's Descripción de la Isla de Puerto Rico, 1582; and *Boletín de la Sociedad Geográfica de Madrid*, 1876.

of Porto Rico. The following account is taken almost verbatim from this description:

The Indians of Haiti called their houses *buhios*, *caneyes*, and *eracras*, and constructed them in two ways, according to the wish of the builder. One kind (figure 1) was circular, the supporting posts being set in the earth 4 or 5 feet apart, forming a circle. The roof was supported by poles which converged at the apex and rested on the upright beams, being tied to the tops of the uprights. They formed rafters, connected by cane stalks, upon which were placed a covering of leaves.

Certain Indian houses, called *caney*, were thatched with the leaves of the *bihaos* or with cane stalks; others with palm leaves or other materials. The walls of this type were made of canes fastened above to the connecting beams and buried in the earth below, all bound together with flexible fibers. A *caney* was circular, with pointed roof, and destitute of windows, the light being admitted through the door. It is said to have had greater strength than the rectangular type, resisting better the terrific winds which sometimes blow over the island.

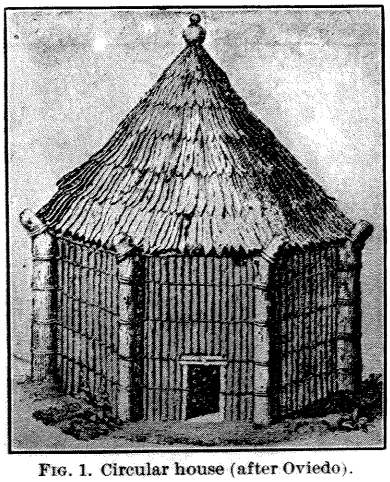

FIG. 1. Circular house (after Oviedo).

The second type (figure 2) had a square or a rectangular shape, but was built of the same kind of material as the former. Descriptions and figures of houses of this kind indicate that they had windows, doors, an A-shaped roof, and a small porch. In the figures given in Oviedo of both kinds of houses, balls are represented along the ridge pole or at the point of the roof. These may have been weights, and it is interesting to compare them with the spherical stones found near village sites.

Modern cabins in Porto Rico resemble the second rather than the first type of ancient dwellings, but differ from both in this detail of architecture. These modern structures are often raised on posts above ground, although examples are common where there are no side walls, the roof extending to the ground. The author has seen at different points on the island a few circular cabins resembling somewhat the *caney* as it is described. Of modern cabins there are several types, of which the following may be mentioned:

THATCHED WITH GRASSES

On plate II (*a*) is represented a building at Luquillo in process of construction, showing the framework without covering, before the thatch has been tied to the roof or upright beams. All the rafters

have not yet been tied or nailed to the beams, but there are posts at the four corners which are stouter than the rest. The beams used in construction are rough, undressed logs, and there is no attempt at hewing or planing them. The pile of straw on the ground is thatch, later used to cover roof and walls.

The next picture (plate II, *b*), representing a partially completed building, is situated in a small fishing village not far from Barceloneta, at the mouth of the Manati river. It has the thatch tied to the side beams forming the walls and on the rafters forming the roof. The figure shows the care that is used in the arrangement of the thatch and its attachment to the framework of the building.

The next illustration (plate II, *c*), representing a partially constructed building near Barceloneta, shows the method of tying this thatch to the side beams and to the rafters. The thatch is arranged in bundles, as shown in the figure, attached directly to the rafters, and held in place by rods fastened a few inches below the points of attachment.

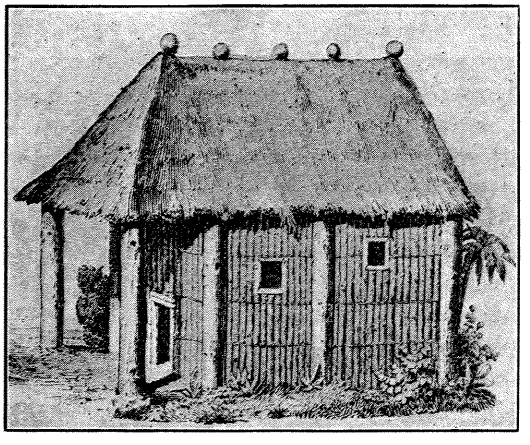

FIG. 2. Rectangular house (after Oviedo).

The next step in the construction of this house would be to lay another course of the thatch higher up than that shown in the last figure, and so in succession until the ridgepole is reached. When the different courses are all tied in place, the loose hanging ends of the lowest course are trimmed to a proper length with a sharp knife. In attaching the thatch, the courses on the sides of the house begin near the ground at the base of the wall, but the first of those on the roof is at the eaves. Each successive course is laid above the course last preceding in both instances.

A completed cabin is shown in the accompanying picture (plate II, *d*, *e*), taken from a photograph of buildings situated near the last. To prevent leakage at the ridgepole, it is often customary to lay along the top of the roof a row of palm leaves bent at an angle, as shown in the figure.

THATCHED WITH PALM LEAVES

Here and there on the island, but less commonly than the first-mentioned type, we find houses covered with the sheaths of palm leaves, called *yaguas*. No thatch is employed in cabins of this type, although the method of construction resembles that mentioned above. One

of these palm-thatched cabins (plate IV, *c*) differs from those above mentioned rather in materials used than in method of construction.

With Palm Leaves on Walls, and Straw-thatched Roofs

A large number of houses have the walls covered with the sheaths of palm leaves (*yaguas*), while the roof is made of thatch (plate III). It will be noticed that there are no windows in many of these houses, all the light entering through the open door; this aperture is closed at night, however, the natives of Porto Rico almost without exception having the idea that night air is injurious.[a]

With Slabs of Palm Wood on Walls

Houses of a fourth kind (plates IV, *b*, and V) have flat slabs of palm wood instead of the *yagua* and thatch on the sides, the roof being sometimes constructed of the former, sometimes of the latter material. Many examples of this type were observed in which half of the walls were covered with palm boards and the remaining half with *yagua*, which is evidently a modern innovation. In one of these the door is made of palm leaves, as shown in plate III, *a*.

A still further modification, regarded as more recent still, is the substitution for palm leaves of plates from kerosene cans, a modern innovation that is especially common near the larger towns. A number of buildings with oil-can roofs may be seen at the small but characteristic pueblo of Cataño, opposite San Juan.

The accompanying figure (plate IV, *a*, *a'*) represents a row of houses near Arecibo, where many of the roofs were made of corrugated iron plates. These buildings are situated on sand dunes overlooking the Atlantic, and are inhabited by negroes and the poorer natives, mostly fishermen. All the methods of construction are found in rows of houses in different towns on the island, as Luquillo, Caguas, and on the bluffs at Arecibo.

While there is a resemblance in certain modern Porto Rican houses to those of prehistoric times, as described by Oviedo and others, this likeness does not hold in details. The round type, or *caney*, once common among the Indians, has almost disappeared, being rarely found on the island. Although the kind of material used for the side walls is identical in ancient and modern houses, it is not attached to the beams in the same manner. In both old and new houses, especially in the latter, there is sometimes an elevation of the floor above the ground; the explanation commonly given for this feature is that it is a way of avoiding dampness and noxious insects. The most primitive cabins in Porto Rico have no elevated wooden floors, but the ground itself serves as the floors of the habitations. The custom of raising the

[a] To walk in the moonlight bareheaded is likewise regarded as unhealthful. It is no uncommon sight to see persons on clear nights with umbrellas spread for protection, possibly from heavy dews.

floor above the ground probably arose at a time when the people lived along the shore, possibly in lagoons where pile dwellings were a necessity, as they are to-day among the Warraus, inhabiting the delta of the Orinoco. These frail modern dwellings, constructed after the same type as the aboriginal, are well adapted to the climatic and other conditions of the island, which fact is supposed to account for their persistence.

Apparently no remains of extensive prehistoric stone and adobe structures exist on the island of Porto Rico, and the same is true of Cuba and Haiti, where Indian ruins of stone or adobe walls have never been observed. This absence of permanent buildings has weight in theories of the origin of the aborigines, for if their ancestors came from Yucatan we should expect evidences of a survival of the stone-building habit, for which the Maya and kindred Yucatan Indians were famous. In the valley of the Orinoco and its tributaries, where there is building material identical with that used by the natives in Porto Rico, stone houses were unknown, and the architecture of houses in that region is practically the same as in the West Indies; this resemblance is one of the many which can be advanced to indicate kinship of the people of South America with those of Porto Rico.

The most aboriginal of the above-mentioned types of Porto Rican cabins are those whose walls and roofs are made of thatch and palm leaves (plate VI); others are modern innovations. These types of dwelling are not confined to Porto Rico or to the West Indies, but occur likewise in the tropical parts of South America, where they are the common forms of dwellings inhabited by very poor people, whether Indian, negro, or white. But they are found only where certain building material is available and although confined to no race or people are limited to certain latitudes. Although they are so widely distributed they reflect the environment of the tropical geographical localities in which they occur as truly as do the adobe dwellings of the pueblos of the southwestern parts of the United States that arid habitat. Like these latter dwellings, they are exact copies of aboriginal structures or are little changed survivals of a prehistoric style of architecture which material at hand and climate have shown to be the best.

In order to obtain information regarding variations from the types described in the other parts of the West Indies the author examined cabins of Indians, blacks, and whites of the poorer classes in several islands, as Cuba, the Dominican Republic, and the Lesser Antilles. In the latter he found cabins still inhabited by Indians constructed in the same way and of like or identical materials. Many of these were reputed to be very old and to have been continuously inhabited by many generations of aborigines. At the settlement of Arima, in Trinidad, several families, survivors of the Indian population of that

island, still live in cabins (plate VII, *a*, *b*) that are thatched in the same manner as those of Porto Rico. They differ as a rule in one important particular, due, no doubt, to local conditions. The cabins of the Arima Indians have a protected portion not inclosed by walls but covered by an extension of the roof, serving as a cooking place. Neither this part nor the adjoining room has other than a dirt floor, like the Porto Rican cabin. Life in both dwellings, judged from a civilized standard, is very primitive; and it is not too much to say that the cabin and its contents of the Gibaros or natives living to-day in the mountains of Porto Rico are no advance on the *caneys* or *bohios* of the prehistoric inhabitants. The prehistoric people of Porto Rico had a low cultural development, but possessed decorated pottery, ornamented pestles, beautifully carved wooden seats, finely made baskets, and delicately woven hammocks. There were many evidences of art, grotesque though it was, in the home of the native. In the modern cabin there is little evidence of art. The Gibaro uses the rudest pottery, which is undecorated; an old oil can serves him for a water jar; he generally has no chairs, table, or bed. His rude wooden pestle bears no ornamentation, and wherever one looks in his cabin nothing but squalor meets the eye. The prehistoric native, judged by what he has left, was in a higher artistic condition.

The Carib house in St Vincent (plate VIII) is built of practically the same kind of material as the thatched Porto Rican cabin, although the photograph represents not a dwelling, but a covered working place, the group of Carib here shown being employed in basket-making. Other Carib houses on this island and on Dominica, where descendants of these Indians still live, differ but slightly from those of the peasants of Porto Rico, and the same is true of the few families who claim Indian descent now living at El Caney, near Santiago de Cuba.

From these considerations, no less than from the folklore, we are led to the belief that the habitations of the prehistoric natives of Porto Rico did not differ widely from houses still built and used by the poorer class now inhabiting the more isolated parts of Porto Rico. If anything, the dwellings of the aborigines were better made, better furnished, and more commodious than modern Gibaro cabins.

SECULAR CUSTOMS

Naming Children; Marriage Customs

Descent among the Borinqueños was in the female line, and their names, of which the son of a cacique had several, were given in a ceremony that occurred immediately after birth. Such names as "Heavenly," "Highness," "Bright One," were borne by some of the chiefs, whom it was customary to address by all their titles.

Comparatively little is known of the marriage customs of the aboriginal native Porto Ricans, and it is commonly stated that wives were treated as slaves. There is every reason to believe that the caciques were polygamous, also that certain of the women exercised considerable power in the government of the island. The great men, according to Pane, had twenty-five or thirty wives, all of whom lived under the same roof as their lord, on terms of equality, although, according to Oviedo, one was more esteemed than the rest; but this honor gave her no right or title superior to the others.

Their marriage ceremonies were celebrated with dances called *areitos*. The right of the first night, when the bride had connection with other men of the rank of her husband, was practised not only by caciques and their dependent chiefs, but also by the common people.

Las Casas mentions that in the betrothals of the caciques the would-be husband was wont to send his principal man to the maid's father, asking for the daughter as wife and companion for life. In some sections of the island he sometimes sent with his embassy presents of food or game. It was customary, after the father had promised his daughter to the cacique, for the latter to accompany the messengers to the father and determine the amount of the dowry of the bride. On his return he sent a present to the father of the girl every day for a month, and when that time had passed he again went to the father to receive the bride, who had been shut up in a specially prepared apartment, where no one could see her but the children who brought her food.

When the groom had given the father all the dower he had promised the bride's hair was cut as a sign that she had become a matron and had lost her liberty by marriage. Among the common people the would-be husband worked out the dowry of his bride by becoming the servant of her father, as Jacob served Laban for Rachel and Leah.

Charlevoix says that some of the Carib possessed two wives, and one of their caciques is stated to have had at least thirty, one of whom was specially honored but who had no control over the others. All slept about their husbands. At the death of a cacique two of the wives, generally favorites, allowed themselves to be buried alive with their former lord. Other favorite wives of the cacique sometimes voluntarily entered the grave and were buried alive, while the remaining wives were appropriated by the cacique's successor.

Hunting and Fishing

The principal food supply of the West Indians was vegetable in its nature and agriculture was their main occupation, but the procuring of animal food by the chase, and especially by fishing, was also an important industry.

Very little has been recorded concerning the hunting and fishing customs of the Porto Ricans, but it appears that in some of the Antilles

at certain times of the year the natives had communal hunts, in which a definite geographical area was surrounded and the game therein driven together by the use of fire and captured. As is customary in all communal hunts, portions of the game were given to the caciques or sacrificed to the gods before the rest was eaten. Practically all hunting, as far as known, was for food, and the natives very rarely killed animals for pleasure.

The abundance and variety of fish found on the coasts and in the rivers and lagoons insured a rich food supply for the aboriginal Porto Ricans. Some scattered accounts of the methods of fishing occur in the writings of early European travelers and chroniclers. Fishes were captured by means of nets or were speared with weapons having shell or bone points. Bone fishhooks and harpoon points have been found in some of the islands. The Cubans are said to have had artificial fish ponds.

In a Life of Columbus, claimed to have been written by his son Fernando, the Cubans are said to have used in fishing the eel-like fish called the remora. This unique method of fish capture is said to have been seen by Columbus on the coast of Cuba, but no confirmatory reference to its use elsewhere in West Indian waters is known to the author. The remora, attached to a cord held by the fisherman, gliding through the water attaches itself to a fish or a turtle by means of a dorsal sucker, after which the fisherman draws it back with its prey.

The use of poison in the capture of fishes among the Carib is spoken of by Davies as follows:

> But if the other inventions for fishing should fail our Caribbeans, they have their recourse to a certain wood, which they bruise after they have cut it into little pieces, which done they cart it into ponds or those places where the sea is quiet and calm; and this is, as it were, a sovereign mummy wherewith they take as much fish as they please, but they are so prudent as not to make use of this last expedient only in case of necessity for fear of making too great a waste among the fish.

A notice of a few edible animals suggests the variety of food derived from hunting and fishing. In the feast which the cacique Behechio gave to the Spaniards in 1496, on their expedition to the province of Xaragua, Haiti, the principal dishes were utias, regarded as a great delicacy, iguanas, and all kinds of sea and river fishes.

The utia (wood rat) was probably the mammal mentioned by Doctor Chanca as "very good eating," and the *agouti* (*guabiniquax*) was hunted with "dumb dogs." The natives hunted also the *cori* (rabbit), *quemi*, and *mohui*, all of which were food animals. Bats, lizards, frogs, insects, spiders, grubs of various kinds, oysters, manatees, and eggs of iguanas, all contributed to the dietary of the natives.

Among other animal foods should be mentioned crustaceans, of which there are many in the West Indies. According to Charlevoix crabs, called *chiches*, were much prized as food. "There is no table," he says, "that they would not honor," and he adds that "a crab or a

fish sufficed for daily food." The "dumb dogs" used in hunting were themselves apparently articles of food in Haiti. Charlevoix says: "The *goschis* were little dogs, which are dumb, and served for the amusement of the ladies, who carried them in their arms. They were also used in hunting in starting up other animals, were good to eat, and were a great resource to the Spaniards in the period of their first famine."

The islanders captured and owned birds of bright plumage, using the feathers for the headdresses and for the decoration of their idols. They were skilled in weaving feathered garments and made caps in which bright-colored feathers were woven in the cloth, described by several authors.

The manner of capturing parrots is thus described by Charlevoix:

> The artifice they used in accomplishing this was quite singular. They made a child, ten or twelve years old, with a tame parrot on his head, climb a tree. The hunters, entirely covered with leaves, approached quietly and made the bird cry out, which cry attracted all the parrots in hearing, which trooped to it crying with all their strength. Then the child passed around the neck of the first bird within reach of his hand a running noose and, drawing it to himself, choked it and threw it to the ground.

Pigeons were taken in nets, being attracted by imitations of their cries. Ducks were apparently domesticated in Cuba.

The question whether or not the Carib ate human flesh is answered in both the affirmative and the negative by different writers. It would take the author too far afield to review at this time the discussion of this subject, but there is evidence that the Carib have been maligned in this particular.[a]

Doctor Chanca, in his famous letter on the second voyage of Columbus, states that the Carib ate human flesh, but Oviedo declares that the inhabitants of Porto Rico, unlike those of the Lesser Antilles, are not cannibals.

AGRICULTURE

The prehistoric inhabitants of Porto Rico were primarily agriculturists, having developed a method of farming which was characteristic. Andreas Moralis says[b] that in the lake region of the Haitian province of Xaragua, Yaquino, Bainoa, Hazua, and Caiabo, when the rains were scanty, they practised a system of irrigation. He adds that "in all these regions are fosses or trenches, made of old time, whereby they convey the water in order to water their fields, with no less art than do the inhabitants of New Carthage and of the Kingdom of Murcia."

[a] See Armas, La Fabula de los Caribes, Irving, Humboldt, and other authors. In some instances the early writers may have confounded the preparation of human skeletons for ancestor worship with the cooking of human flesh for food.

[b] Hakluyt's Collection, v, 301.

The writer has been told by reliable authorities that there still remain in Cuba evidences of old Indian irrigation ditches, but he has not seen them. No evidence of this method of watering the farms was observed in Porto Rico, nor is evidence of prehistoric irrigation on that island known to the author.

The Haitian method of preparing fields for agriculture was to clear them of vegetation by fire. The burning of the brush was apparently done by men; the remaining processes of agriculture were performed by the women. In planting they used a sharpened stick called *coa* as a drill for making holes in the earth for sprouts, cuttings, or seeds.[a]

The ancient Porto Ricans utilized for food a large number of native or introduced plants and in some parts of the island were essentially frugivorous. We know the names of a few of their vegetable foods, which in all probability were the same as those of the other West Indians, and concerning which there are many references by the early writers. Corn was one of the important articles of diet, but a bread called cassava, prepared from the root of the manioc, was the main food supply.

Some islanders of the West Indies lived wholly on *casabi* (*cassava*), but they had several other plants, some of which were adopted later as foods by civilized races. Among the latter are roots called *ages* and *batata* (sweet potatoes), five varieties of which are mentioned—*aniguamar*, *atibiuneix*, *guacaca*,[b] *guanavana*, and *guanano;* but these differed very little from one another and are possibly the same. The Indians of Haiti also cultivated plants called *mani* and *yahutia*, the leaves and roots of which they ate, and another food plant called *axi* was known and cultivated throughout the island. They likewise raised for food plants known as *lirenes*,[c] and pineapples of different kinds called *yayama*, *boniama*, and *yayagua*. The fruits, *anon*, *guanabana*, *cauallos*, and *mameyes*, all of which are aboriginal names, were eaten and much prized. It would be an important contribution to our knowledge of the diet of the aboriginal West Indians to consider other food plants mentioned by the early historians, for the islanders utilized many plants that would have an economic value if added to the diet of civilized people of the Tropics.

The two principal foods of the aboriginal Porto Ricans were a bread made of corn meal and the cakes called cassava,[d] made of the root of the sweet and bitter yucca. The preparation of cassava is a complicated process, since the bitter manioc root contains poisonous elements which must be eliminated before its starch can be eaten. Judging from Benzoni's account of the preparation of this root the aborigines of the

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[a] Alvaro Reinoso, Agricultura de los Indígenos de Cuba y Haiti, Paris, 1881.

[b] *Gua* is apparently the article or some similar prefix.

[c] See Renato de Grosourdy, El Médico Botánico Criollo, pts I and II, Paris, 1864.

[d] The latter, essentially a South American food, is significant in the study of Antillean racial origins. There are still in the island of Porto Rico good cassava-bread makers.

West Indies employed practically the same method as that now used by the kindred people of Venezuela and Guiana.

The details of cassava manufacture vary somewhat among those Indians who now use the root, but all seem to adopt a similar method of extracting the poisonous juice. Good descriptions of the process adopted by the Orinoco races are given in Gilii,[a] but perhaps the most complete account, with illustrations, is by im Thurn,[b] as follows:

One woman, squatting on her hams, and armed with a big knife, peels off the skin of the cassava roots, which lie in a heap at her side. Each root, after being peeled, is washed and then thrown on to a new heap. A little way off another woman stands, and, grasping one of the peeled roots with both hands, scrapes it up and down an oblong board or grater studded with small fragments of stone and so roughened like a nutmeg grater. One end of the grater stands in a trough on the ground, the other rests against the woman's knees. It is violent exercise.

As the woman scrapes, her body swings down and up again from her hips. The rhythmic "swish" caused by the scraping of the juicy root is the chief sound in the house, for the labor is too heavy to permit of talking. The cassava, which slips as pulp from the scraper into the trough, is collected and put into a long wicker-woven *matapie*, which hangs from the roof. This *matapie*, or cassava squeezer, is in principle exactly like the not uncommon toy known as a "Siamese link." It is a cylinder, 7 or 8 feet long and 5 or 6 inches in diameter, made of closely woven strips of pliant bark. The upper end is open and has a hoop by which the *matapie* may be suspended from one of the beams of the house; the lower end is closed, but it also has a hoop, the use of which will presently appear.

The cassava, saturated with its highly poisonous juice, is now forced into the *matapie;* through the loop at the bottom of this a heavy pole is passed, one end of which is allowed to rest on the ground and is there fastened by means of a heavy stone or some other device, while the other is raised in the air. A woman now sits on the raised end of the pole and her weight stretches the *matapie* downwards. In proportion as the length of the cylinder increases its diameter is of course reduced. The pressure thus applied to the cassava pulp immediately forces the poisonous juice out through the walls of the *matapie*.

The juice drops down into a buck-pot which stands on the ground; and it is this which, when it is afterward boiled, becomes cassareep, a thick treacle-like liquid, which is no longer poisonous. . . . The cassava, now dry and free from juice, is taken from the *matapie*, broken into a sieve, and sifted, so that it becomes a coarse flour. This is either wrapped in leaves and put away for future use or is at once made into bread.

A large circular griddle, or plate, of European manufacture, is now placed over the fire or, by some of the remote Indians, a flat slab of stone is used for this purpose, and there can be little doubt that this stone was originally universally used. On the griddle, whatever its material, a thin layer of the meal is spread. A woman, fan in hand, sits by the fire watching. With her fan she smooths the upper surface of the cake and makes its edges round. In a very few minutes one side of the large, round, white cake is done; and, when it has been turned, in yet a couple of minutes the bread is ready. When a sufficient number of these oatcake-like pieces of bread have been made, they are taken out of the house and thrown upon the roof to dry in the sun. . . . When thoroughly sun dried the bread is hard and crisp, with a flavor like that of freshly gathered nuts. In this state, if guarded from damp, it will keep for an indefinite time. . . .

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[a] F. S. Gilii, Saggio di Storia Americana, Rome, 1782.

[b] Among the Indians of Guiana, London, 1883.

Some of the True Caribs slightly diverge from the method of making bread, in that they pound the meal in a mortar before sifting it, and, if it is to be kept for any length of time before use, slightly smoke it. The bread thus produced is much more friable, and much more easily digestible than that made by the ordinary process.

When cassava is very scarce its bulk is sometimes increased by mixing the chopped leaves of the cassava plant, or the pounded seed of the mora tree (*Mora excelsa*), or of the greenheart tree (*Nectandra rodiæi*), or even pounded rotten wood, with the meal.

"The women," says Charlevoix, "to escape being enslaved by the Spaniards, committed suicide by drinking the poisonous juice of the manioc."

Oviedo gives an account, accompanied with figures, of how the West Indians kindled fire with wooden sticks and with the fireboard, the latter being two sticks joined together: he describes also the method of the rotary fire drill. The favorite wood for fire sticks was that called by the Indians *guasuñas;* the fire drill was about the size of the index finger.

RELIGION

A prominent writer states that the aborigines of Porto Rico were wholly destitute of a religion. This is a mistake. If the word religion be limited to a belief in ethical gods, in a beneficent creator and a malevolent devil, the Borinqueños had no religion, but the word should not be so limited. The Antilleans certainly believed in supernatural beings and had a theory of their nature and power, implying the possession of a mythology, and they employed a well-developed system of rites, ceremonies, and other procedures to influence these beings.

It would be erroneous to suppose that the Indians called all their gods devils, meaning by that term malevolent spirits, or that they had any knowledge of a supreme God, the creator of the universe. All their supernatural beings were thought to possess power for good or ill in material ways, which the priests believed that they could control for the weal or woe of the individual or the community.

From the available historical material it may be supposed that the ancient Antilleans believed in two great supernatural beings, called *zemis*, that were parents of all others. These may be known as earth goddess and sky god, or personifications of the magic power of earth and sky. One was male, the other female, and from them originated all minor gods, men, and animals; but neither of these parents created the universe, which was supposed always to have existed. These two first parents were symbolized by idols, made of stone, wood, or clay, to which the Indians addressed prayers and in the presence of which they performed rites for the well-being of the human race.

A group of secondary supernatural beings, also called *zemis*, were tutelary in nature, representing ancestors of the clans. These also were symbolized by idols made of stone, wood, or like materials, but

the cultus of these idols was limited to families, and their images were kept in a house of the cacique that was devoted to this special purpose.

While the worship of the two nature powers representing the sky father and the earth mother was the highest form of their cultus, it is probable that most of their rites were devoted to their *zemis*, the tutelary gods representing ancestors.[a] Idols, as well as the spirits they represented, were called *zemis*, and the name, meaning originally magic power, came to be applied to all supernatural beings and their symbolic representations. A clearer understanding of the Antillean cultus may be had if their term *zemi* be considered in several of its applications.

ZEMIISM

The word *zemi*, *semi*, *chemi* is believed by some authors to be a corrupted form of *guami*, "ruler;" by others to be derived from *quemi*, "animal." Columbus, who was regarded by the natives as a supernatural being, was called *guami-que-ni*, "ruler, or god, of earth, water, and sky." The Carib still speak of their priests as *ceci-semi*. It may be worth mentioning that in several Arawak dialects the word for tobacco is *tchémi*, and variants, evidently referring to its magic power or *zemi*.

The name was apparently applied to gods, symbols of the deities, idols, bones or skulls of the dead, or anything supposed to have magic power. The dead, or the spirits of the dead, were called by the same term. The designation applied both to the magic power of the sky, the earth, the sun, and the moon as well as to the tutelary ancestors of clans. *Zemis* were represented symbolically by several objects, among which may be mentioned: (1) stone or wooden images; (2) images of cotton and other fabrics inclosing bones; (3) prepared skulls; (4) masks; (5) frontal amulets; (6) pictures and decorations on the body.

The Indians of Haiti, according to Benzoni and Pane, had *zemis* of many[b] different forms,[c] some consisting simply of bones of parents or relatives, others being manufactured of wood, clay, gold, silver, and stone. These Indians believed that certain *zemis* increased the food supply and others brought rain, while still others caused winds. As we have no special account of the character and meaning of the conception of *zemis* among the prehistoric Porto Ricans we are obliged to rely mainly on descriptions of those recognized by their kindred, the people of Haiti.

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[a] Prehistoric Porto Rico, a vice-presidential address before Section H of the American Association. *Science*, July 18, 1902; *Proceedings of the American Association for the Advancement of Science*, 1902. German translation in *Globus*, no. 18 and 19, 1902.

[b] An early writer informs us that there was an island near Haiti the whole population of which was occupied in making idols.

[c] According to some writers there are indications of phallicism in the forms of the idols, an explanation which is regarded by the author as highly fanciful.

Names of different *zemis* occur in the works of Ramon Pane[a], Peter Martyr, and other writers, but the lack of uniformity in spelling used by these authors and the number of names applied to each *zemi* make it difficult to determine their identity. There is, however, in early writings abundant material which is highly instructive and which can be used to great advantage in this comparative study. Speaking of their *zemis*, Columbus wrote these words: "They also give the image a name, and I believe it is their father's or grandfather's, or both, for they have more than one, and some about ten, all in memory of their forefathers, as I said before." Peter Martyr's account of the religion of the natives is derived from Pane's book.

The earth goddess had at least five different names, and to this number may be added others that appear in some of the accounts. The sky father likewise had several different names, possibly descriptive of attributes or peculiarities.

The following list, compiled from Peter Martyr and Ramon Pane, contains corresponding names of the earth mother mentioned by two contemporary observers:

RAMON PANE	PETER MARTYR
1. Atabei.[b]	1. Attabeira.
2. Iermaoguacar.	2. Mamona.
3. Apito.	3. Guacarapita.
4. Apito, or Siella.	4. Liella.[c]
5. Suimaco (Zuimaco).	5. Guimazoa.

The great aboriginal cultus hero, *Yocahu*, or *Marcoti*, a beneficent god, sometimes spoken of as son of the universal mother, was regarded as their Great Spirit, the analogue of the Creator in higher religions.

The several names of this son, "who lives in the sun," and his attribute "Lord of Earth," are given in the following list:

SOURCE	GODDESS OR GOD
Ramon Pane	Jocakuvague-Maorocon.
Peter Martyr	Iocauna-Guamaonocon.[d]
Las Casas	Yocahu-Vagua-Maorocoti.
In Jamaica (according to Bachiller)	Yocahuna.
In Borinquen (according to Bachiller)	Yacana-Gumanomocon.

[a] The account of the religion of the Antilleans by this Catalan priest appears in Fernando Columbus's life of his father. Although the authorship of this life has been questioned by Harisse, Bachiller y Morales well says that, whether the work ascribed to Fernando Columbus is apocryphal or not, the relation of Fray Ramon Pane must be regarded as genuine. From the edition of the Historia del Signor Don Fernando Columbus, printed in Milan in 1614, Bachiller has taken section 1 of the second part of his work. According to Torquemada (Mon. Ind., p. 296), Pane was one of three zealous priests of Haiti who, having learned the Indian tongue, employed it in teaching the natives. He, with Fray El Bermejo and Fray Juan de Tisim, went among the Indians, learned their language, and reported to Columbus their rites and ceremonies. The most satisfactory summary of Fray Ramon's studies, that used by the author, is found in the Apologetica, in vol. v, Historia de las Indias of Las Casas, and Churchill's Collection of Voyages, II, 567–578.

[b] *Ata*, "first;" *bei*, "existence."

[c] Possibly a corruption of the Spanish *tierra*, "earth."

[d] The first element, *guama*, according to Bachiller, possibly means "lord" or "ruler," *ocon*, "earth."

A female *zemi*, called Guabancex, was a water and wind goddess, who, according to Pane, had two subordinates, one of which, called Guatauva, was a messenger to the lesser *zemis*, while the other, Coatrischie, controlled winds and water, at times personating the tempest and raising winds which overthrew houses.

The *zemi* Yobanua-Borna, who was kept in a cave, was worshiped for rain, and like Guabancex had two subordinates called by Pane Boirnail and Maroig, by Martyr Buthaitel and Marohu. These were evidently other clan names for rain and wind gods; their idols are said to have been made of stone.

According to Gómara, the Haitians had two statues made of wood called Morobo and Bintatel which were kept in a cave at Toaboyna, and to which they made pilgrimages at certain times of the year. This is the cave from which the sun and moon are supposed to have emerged. Charlevoix says that the cave of Yobobala,[a] the master, was situated in the territory of the cacique Manatibex, one of the five great caciques of Haiti, and was called Bintatel, or, according to Torres, Boiniael, meaning "the son of the master of water." According to the latter author, who thus interprets Pane, this name was applied to a stone *zemi* that the Haitian Indians held in great reverence, before which they were accustomed to perform rites when it did not rain. The sun caves of Yobobala are thus described by Charlevoix:

> The caves from which the sun and the moon came out and to which the Haitian people made pilgrimages from all parts of the island contained two idols, to which they did not fail to carry rich offerings. There is a belief that this is the same cave which is seen in the Dendon quarter at a distance of 6 or 7 leagues of Cape François. It is 150 feet deep and about as high, but is quite narrow. The entrance is higher and wider than the largest porte-cochère in Paris, through which, and by an opening made in the vault, the grotto receives all its light. This opening appears to be worked in the shape of a belfry, and it is believed that the sun and moon make their exit to the sky by this way.
>
> All the vault of the cave is so pretty and regular that it is difficult to believe that it is a work of nature. No statue is seen in this place, but there are everywhere *zemis* carved in rock, and the whole cavern appears to contain high and low niches, which are believed to be artificial.

The *zemi* Faraguvaol was a trunk of a tree found by an Indian and carried to a chief. This being had the habit of wandering about and could miraculously escape when confined in a sack. It was supposed to wander continually over the face of the earth. Opigielguoviran had four feet like a dog and at the advent of the Spaniards is reputed to have plunged into a morass from which he never emerged. Its idol was made of wood.

The *zemi* called Giocauvaghama, according to Gómara, Pane, and other authors, was consulted by the cacique Guarionex to learn the fate of his gods and people.

Peter Martyr says that when they built a house for the cacique

[a] *Yobo*, "a great tree," referring, no doubt, to Fray Ramon Pane's tradition that the sun saw men fishing and turned them into trees.

Guamoretus they found in the roof a *zemi*, called Corocnotum (Corocose), that was made of cotton. Persons having two crowns in their hair were supposed to be related to this *zemi*, who had a fondness for lying with women.

The *zemis* known as Baidrama, or twins, and called also Bugid y Aiba was a war god. Fray Ramon Pane says that the Indians believed that their strength could be augmented by this being, and that when they smoked in honor of this god their arms increased in size and their eyesight was restored. They could increase their strength also by bathing the body in the juice of the yucca (*giuca*).

ZEMIS OF WOOD

Las Casas says that the Indians of Haiti had certain statues made of wood, which Columbus described in a letter to the Catholic monarchs, Ferdinand and Isabella, and adds that they placed in them bones of relatives and gave them the names of the persons whose bones were inclosed. Some of these images were hollow, and when the caciques consulted the idols priests hidden within responded. It happened on one occasion that a Spaniard, who had heard the responses issuing from the image, kicked it over, thus revealing the secret means by which it was made to appear to speak. There was in one corner of the room containing the idol a space in which the person who really spoke was hidden behind shrubbery, his replies to the priest questioning the idol being borne through a tube to the statue.

The idols are described by Pane, whose account is quoted by Las Casas: "The natives had certain statues or idols to which they gave the name *cemi*, which they believed gave water, wind, and sun when needed. These idols were made of stone and wood."

Fray Ramon Pane writes as follows regarding wooden *zemis:*

> When a native was passing by a tree which was moved more than others by the wind, the Indian in fear calls out, "Who are you?" The tree responds, "Call here a Bohii or priest and I will tell you who I am." When the priest or sorcerer had come to the tree and had seated himself before it he performed certain prescribed ceremonies,[a] and rising recounted the titles and honors of the principal chiefs of the island, asked of the tree, "What are you doing here? What do you wish of me? Why have you asked to have me called? Tell me if you wish me to cut you down and if you wish to go with me, how I shall carry you, whether I shall make you a house and a plantation and perform ceremonies for a year." The tree answered these questions, and the man cut it down and made of it a statue or idol of sinister look, for ordinarily they make the faces of the idols in the forms of old monkeys.
>
> He made a house and plantation, and each year performed certain ceremonies and consulted it as an oracle, asking as he retired from its presence things good and bad, or prophecies of what would happen in the future. He announced the replies to the common people.

[a] In Churchill's Voyages, page 574, where Ramon Pane is somewhat differently translated, these ceremonies are called *cogioba*, "which *cogioba* is to pray to it, to please it, to ask and know of the said *cemi* what good or evil is to happen, and to beg wealth of it." *Cogioba* is a word for prayer, and as smoking tobacco is practically among primitive Americans a form of prayer, *cogioba* is the term for smoke and tobacco.

ZEMIS OF STONE

The Haitians, says an early writer, had *zemis* made of stone, some of which were supposed to make the rain, others to cause the crops to grow, and still others to aid women in childbirth. We have also a statement that certain stone *zemis* or little idols—the frontal amulets described later—were tied to the forehead by the Carib when they went into battle.

Early writers have given us no figures of the many kinds of stone *zemis* used by aboriginal Haitians or Porto Ricans, but we can hardly doubt that many of those considered in the following descriptions belong to this category. It is believed by the writer that all three-pointed stones are practically *zemis* and were used "to make the yucca grow." The stone heads and masks that form striking objects in collections of Porto Rican antiquities may have had the same name, but have been put to different uses.

ZEMIS OF COTTON CLOTH INCLOSING BONES

The skull or other bones of the dead were wrapped in cotton cloth or basketry and preserved for worship. The crania were sometimes attached to bodies made of cotton in human form and were kept in a certain house, generally that of the cacique. Human bones were treated as *zemis* and preserved for religious purposes.

The Carib also made cotton images which contained human bones that are thus referred to by Davies:

> They expect, in their sickness, the sentence of their life or death from those detestable oracles, which they receive by the means of these puppets of cotton, wherein they wrap up the worm-eaten bones of some wretched carcass, taken out of the grave. . . . They burn in honor of them the leaves of tobacco, and sometimes they paint their ugly shapes in the most considerable place of their vessels, which they call piraguas, or they wear hanging about their necks a little image representing some one of those cursed spirits.

Peter Martyr mentions seated *zemis* made of cotton, but as objects of this kind are naturally perishable few specimens have been preserved to the present time. One of these found in Santo Domingo, formerly owned by Señor Rodriguez, consisted of a skull inclosed in a cotton covering and mounted on a body stuffed with the same material. Apparently, artificial eyes were inserted in the eye sockets and cotton or other fabrics were tied about the legs and arms.

ZEMIS PAINTED ON THEIR BODIES AND FACES

The habit of painting the body and face with various pigments is mentioned by several of the early writers, one or more of whom have recorded that the pictures represented are tutelary gods, or *zemis*. There is unfortunately no account giving detailed information as to

what gods these paintings represent, although the observers constantly mention the hideous character of the figures depicted.

From one point of view it appears that this custom, like that of wearing masks and other ceremonial paraphernalia, had for its object the identification of the man with his tutelary gods or *zemis*, especially when used on ceremonial occasions. It was one of those methods, of which many parallels might be mentioned among other primitive peoples, where in symbolic ways man tries to lose his identity in the god he personates or worships. From the exoteric point of view these paintings[a] were simply body marks indicating totems of those who were thus decorated.

When Anacaona ("flower of gold"), wife of the cacique Caonabo, received the Spaniards and entertained them with an *areito*, described by older writers, her body was painted with figures and red and blue flowers, evidently zemeistic or totemistic. Almost all authorities concur in the statement that when the Antilleans went to war they painted their bodies with horrible figures, and one author mentions the fact that these figures represent *zemis*. This accords with the theory that the totem used by North American tribes was primarily a man's name and mark, and that ethnologically the word refers to the pigment or earth used in painting a distinctive mark on the body or its adornments.

A strict abhorrence of incest, and the necessity of body marks to distinguish members of the same clan, naturally led to designs on the body, which took the form of animals and plants or other natural objects. This method of designating members of the same clan by the same body markings, so that a man could recognize his relatives, was the simplest form of totemism.

The *zemi* which the Antillean cacique painted on his body corresponds primarily with the totem of the North American, and the figures on the bodies of the caciques probably represented their tutelary beings, each different and characteristic, as the clans differed. There is little doubt that when a cacique was thus painted with the figure of his tutelary god, he became in his own conception, as well as in that of his clan, to all intents and purposes the supernatural being represented, just as when a Pueblo Indian puts on a mask with certain symbols he is transformed into the being which the symbolism of that mask represents.

Priesthood

The prehistoric Porto Ricans had a well-developed priesthood, called *boii* (serpents), *mabouya*, and *buhiti*, which are apparently dialectic or other forms of the same word. The priests, called also caciques by

[a] Among other pigments used was the *xagua*, *roucou*, and *bixa* (*Bixa orellana*), the last named being a favorite paint for adornment in the dances.

the Spaniards, were shamans, or medicine men. We find priests sometimes called *zemis*, *caci-semi*, and *zemis* or idols called *boii*, a natural interchange of names among primitive peoples, where priests often personate the gods or, when representing them in their ceremonial festivals, assume their names.

Among the manifold duties of the prehistoric priesthood may be included divination, or the consultation of the *zemis* for oracular purposes, and recourse to them for aid in peace and war or the cure of the sick. The priests also made offerings to the idols in their keeping, performed secret rites for rain and the growth of crops, and were the leaders in the public dances and religious ceremonies.

Divination

The *zemis* were supposed to have prophetic powers and were consulted by the caciques and common people through the medium of the *boii*. An example of this divination is recorded in the early writings, where a Haitian chief, Guarionex, consulted his *zemi* regarding the fate of the country and its people, and received a reply so nearly true that it has been commented on by early chroniciers.

As already explained, elaborate mechanical contrivances were used to deceive those seeking responses from the idols.

Davies thus describes the method of procedure of these *boii*, or medicine men, among the Carib:

> It is requisite, above all things, that the home or hut into which the *Boye* is to enter should be very neatly prepared for his reception; that the little table, which they call Matouton, should be furnished with anakri for Maboya[a]—that is, an offering of cassava and *onicon* for the evil spirit—as also with the first fruits of their gardens if it be the season of fruits. It is further requisite that at one end of the hut there should be as many low stools or seats as there are to be persons present at that detestable action.
>
> After these preparations the *Boye*, who never does this work but in the night-time, having carefully put out all the fire in and about the home, enters into it and, having found out his place by the weak light of a piece of tobacco set on fire, which he hath in his hand, he first pronounces some barbarous words, then he strikes the ground several times with his left foot, and, having put the end of tobacco which he had in his hand into his mouth, he blows upward five or six times the smoke which comes out of it, then, rubbing the end of tobacco between his hands, he scatters it in the air. Thereupon the devil, whom he hath invocated by these spirit ceremonies, shaking very violently the roof of the house or making some other dreadful noise, presently appears and answers distinctly to all the questions put to him by the *Boye*.
>
> If the devil answers him that his disease, for whom he is consulted, is not mortal, the *Boye* and the apparition which accompanies him comes near the sick person to assure him that he shall soon recover his former health, and to confirm him in that hope they gently touch those parts of his body where he feels most pain and, having pressed them a little, they pretend that there comes out of them thorns, pieces of bone, splinters of wood and stone, which were, as these damnable physicians affirm, the cause of his sickness. Sometimes they moisten the part affected with

[a] The great power, "evil spirit," probably derived from *ma*, "great;" *boya*, "snake."

their breath, and, having sucked it several times, they persuade the patient that by that means they have got out all the venom which lay in his body and caused him to languish.

Medicine Practices[a]

Among the Borinqueños as among all primitive peoples the priests had developed a theory of curative medicine in which the doctrine of signatures played an important rôle. The cure of the sick was supposed to be accomplished by the magic power of the tutelary god which the *bo'i* believed they could control for the good of the patients; these primitive medicine men also believed themselves able, through sorcery, to inflict sickness on those whom they wished to harm. In addition to the use of magic, these priests were acquainted with a rich pharmacopœia of herbs which were used empirically. A knowledge of these herbs was not, as in other primitive medicine practices, confined to the priests. Pane gives the following account of the treatment of the sick by the *buhuitihu*, or doctors, which is corroborated by Benzoni (p. 82). According to these authorities the herb most employed was tobacco,[b] or at times merely the smoke was used.

When they go to visit any sick body, before they set out from their house, they take the soot off a pot, or pounded charcoal, and black all their face, to make the sick man believe what they please concerning his distemper. Then they take some small bones, and a little flesh, and wrapping them all up in something that they may not drop, put them in their mouth, the sick man being before purged with the powder aforesaid. When the physician is come into the sick man's house he sits down and all persons are silent, and if there are any children they put them out, that they may not hinder the *Buhuitihu* in performing his office; nor does there remain in the house any but one or two of the chief persons. Being thus by themselves, they take some of the herb *Gioia* . . . broad, and another herb, wrapped up in the web of an onion half a quarter long; one of the *Gioia's*, and the other they hold, and drawing it in their hands they bruise it into a paste, and then put it in their mouths to vomit what they have eaten, that it may not hurt them; then presently begin their song, and lighting a torch, take the juice. This done, having staid a little, the *Buhuitihu* rises up, and goes toward the sick man, who sits all alone in the middle of the house, as has been said, and turns him twice about, as he thinks fit; then stands before him, takes him by the legs, and feels his thighs, descending by degrees to his feet; then draws hard, as if he would pull something off; then he goes to the door, shuts it, and says, be gone to the mountain, or to the sea, or whither thou wilt; and giving a blast, as if he blowed something away, turns about, claps his hands together, shuts his mouth, his hands quake as if he were cold, he blows on his hands, and then draws in his blast as if sucking the marrow of a bone, sucks the sick man's neck, stomach, shoulders, jaws, breast, belly, and several other parts of his body. This done they begin to cough, and make faces, as if they had eaten some bitter thing, and the doctor pulls out that we said he put into his mouth at home, or by the way, whether stone, flesh, or bone, as above. If it is anything eatable, he says to the sick man, take notice you have eaten something that has

[a] Restricted to curing sickness. In ceremonies for rain or growth of crops the term "medicine" is also used, and in both applications we find the same theory of magical influence.

[b] H. Ling Roth, Aborigines of Hispaniola. *Journal of the Anthropological Institute of Great Britain and Ireland*, XVI, 247-286, 1887.

caused this distemper; see how I have taken it out of your body; for your *Cemi* had put it into you because you did not pray to him, or build him some temple, or give him some of your goods. If it be a stone, he says, keep it safe. Sometimes they take it for certain that those stones are good and help women in labor; wherefore they keep them very carefully, wrapped up in cotton, putting them into little baskets, giving them such as they have themselves to eat, and the same they do to the *Cemies* they have in their houses. Upon any solemn day, when they provide much to eat, whether fish, flesh, or any other thing, they put it all into the house of the *Cemies*, that the idol may feed on it. The next day they carry all home after the *Cemi* has eaten. And so God help them, as the *Cemi* eats of that, or any other thing, they being inanimate stocks or stones.

Herrera (Dec. I, book iii, chap. 4, page 69) gives a condensed account of the procedure of these aboriginal doctors in curing disease:

When any leading man is sick he calls a medicine man, who is obliged to observe the same dietary as the patient. The doctor is accustomed to purge himself with an herb that he takes in his nose until he believes himself inspired, in which condition he says many things, giving the sick to understand that he is talking with an idol. Then the Indians are accustomed to anoint their faces with oil and to purge the sick, all standing by in silence.

The doctor first makes two circuits about the patient and pulling him by the legs goes to the door of the house, which he shuts, saying: "Return to the mountain or whither you wish; blow and join hands and tremble, and close the mouth." Breathing on his hands, he then sucks the neck, the shoulders, and stomach, and other parts of the body of the sick man, coughing and making grimaces and spitting into his hands something which he had placed in his mouth, saying to the sick man that he had taken from the body that which was bad; his *zemi* had given him it because he had not obeyed him. The objects which the doctors take from their mouths were for the most part stones, for which they have much devotion for use in childbirth or for other things, and they preserve them as relics.

This method of procedure, with unessential variations, might be paralleled in accounts of almost all the American Indians, the theory being that some sorcerer has afflicted the sick by shooting into him an object with magic power, and that the doctor, having located it in the body by direction of his tutelary god, removes it by his magic power (*zemi*) and that of the god.

The same author (Pane) makes an interesting statement regarding the fate of the doctor in case of the death of his patient. Should the sick person die, the doctor not having himself properly observed the prescribed diet, the Indians, in order to discover whether the death was due to the latter's negligence, gathered the juice of a certain herb and opened a blood vessel of the dead person; then, cutting off the hair about the forehead of the deceased, they made a powder from it and, having mixed with it the juice of the herb, they presented the mixture to the mouth of the corpse, for it to drink, then to its nose, asking many times whether the doctor had observed the proper course of treatment, until the demon replied as clearly as if the patient were alive that the doctor had not done so. Thereupon the corpse was returned to the grave. Then the relatives of the deceased seized the doctor and gave

him many strokes with a stick, breaking his arms or legs. Others gouged out his eyes or lacerated his private parts.

NARCOTICS

Under the above title the author includes herbs and intoxicating drinks used to create certain ecstatic conditions as a preliminary to religious rites and ceremonies. In this category may be considered the practice of smoking, snuffing, and chewing tobacco, called *cohiba*,[a] and the use of an intoxicating drink of corn juice, called *chiichia*.

Tobacco in a number of different forms was commonly used in all ceremonies. Its smoke was the incense with which the priests accompanied their prayers to their gods; and with snuff, or powdered tobacco, they sometimes sprinkled the heads of their idols. The *boiti* stupefied themselves with this herb when they consulted oracles in divination, and by it they cured the sick in medicinal practices. The process of inhaling the smoke through the nostrils is mentioned in several early accounts, and, according to many authorities, special tables on which the herb was placed stood before their idols. The method of inhaling was as follows: Partially dried tobacco was first spread on a half-lighted brazier, after which a tube was placed in the smoke and the other extremity, provided with two branches, inserted in the nostrils; the smoke was then snuffed up, mounting quickly to the brain. The user generally succumbed to the narcotic and remained where he fell, stupefied. A cacique thus affected was raised by a woman and carried to bed. If during this drunkenness or stupefaction he had a dream, it was regarded as a vision "from heaven."

The aboriginal method of smoking ceremonially, according to another author, was to place the powdered herb on a small brasier called a *tabla* and snuff it through a tube. The powder was used also to sprinkle the idols before which the *tabla* stood, in the same way that the Hopi sprinkle their idols with meal and pollen. It would be interesting to discover whether in this method of *cohiba* the tobacco was smoked or not. While there can be no doubt that in some cases the herb was ignited, in many other instances there is no evidence that the tobacco was burning or giving off smoke when thus used, and it seems to have been simply snuffed into the nostrils. A bifurcated tube, evidently one of those by which the herb (snuff) or its smoke was taken into the nostrils, is figured by Oviedo, but no specimen of this kind of Antillean pipe is known in any collection that has been made on any of the islands.

The forms of pipe common among the North American Indians are not mentioned in the accounts which have come down to us in the

[a] The Antillean words for the plant *Nicotiana*, called by Europeans tobacco, are *cohiba*, *cogiba*, *coyoba*, *cogioba*, *cohot*, etc. The aborigines applied the name tobacco to a pipe or roll of dried leaves called a cigar. Ceremonial smoking has the same names.

older writings. Doctor Cronau figures two Lucayan clay pipe bowls of a bird form identical with certain mound pipes that are now in the Nassau library, New Providence island, Bahamas. As similar forms have not been recorded from the more southerly West Indies and little is known of the history of those from Bahama, it is desirable to determine their antiquity and to know definitely the locality in which they were found.

In aboriginal secular smoking it was customary to roll the tobacco leaf in much the same way that cigars are now made, and a cigar is even now called a "tobacco" in the West Indies. The companions of Columbus noticed the Cuban Indians smoking tobacco in this form. Gómara says that the islanders ate tobacco, but it is more probable that they simply chewed the herb for its narcotic influences, the object being to obtain psycho-religious suggestions.

A beverage made from the root of the manioc was used in dances, many of which closed with a general debauch in which all the participants became intoxicated. There is every reason to suppose that this drink was prepared in the same way as the intoxicant employed by the Guiana Indians described by im Thurn.

Rites and Ceremonies

For our knowledge of the ceremonies of the prehistoric Porto Ricans we must rely wholly on early authors whose accounts relate to the Indians of Haiti rather than to those of Porto Rico. As all agree that there was close similarity in the inhabitants of the two islands we are justified in the belief that the descriptions given hold good also for the Indians of Borinquen, or Porto Rico. There is, besides, a certain parallelism in the ceremonies of all primitive peoples, a knowledge of which may be used in interpreting the ritual of any individual tribe.

The most important communal ceremonies among the Haitians were performed for rain and the growth of the crops, but there were ceremonies for success in war and for curing the sick, commemoration rites over the dead, initiation rites, and various others. In some instances these rites took the form of elaborate dances, accompanied by prayers, songs, and other performances. Dramatization played an important part in all ceremonies and was especially prominent in war dances, in which were represented the motive of the war, the departure of the warriors, ambuscades, surprise of the enemy, combat, celebration of the victory, and return of the war party, accompanied with mortuary rites of a commemorative nature, for the fallen (plate IX). These dramatizations were called by the same name as other ceremonial dances celebrated on important occasions. A dance, or *areito*, accompanied the birth of a child and the death of a cacique. In medicinal practice it was regarded as a means of augmenting the

power of the warrior; by it the Indians sought to bring rain or to further the growth of crops.[a] *Areitos* formed a part of marriage ceremonies and were especially prominent in all mortuary observances. The greatest festivals apparently occurred on the death of caciques, but lesser ceremonials were celebrated at births, the cutting of hair, puberty, the making of chiefs, marriages, the clearing of farms, the building of canoes, and on most other important secular occasions.

The festivals of the Carib, called by some writers drunken debauches, occurred, according to Davies: (1) When any council was held concerning their wars; (2) when they returned from their expeditions; (3) upon the birth of the first male child; (4) when they cut their children's hair; (5) when boys became old enough to go to war; (6) when they cut down trees for the making of a garden and the building of a house, and (7) when they launched a vessel. According to the same author they had other festivals: (1) When they entered into adolescence; (2) when they were made captives; (3) at the death of their fathers and mothers; (4) at the death of the husband or wife, and (5) when they killed one of their enemies, the Arawak.[b] As the Porto Ricans had Carib kinship, it may be supposed that many of these rites occurred also among the former.

Gómara (chapter XXXIII, page 27) records a prophecy of the destruction of the Indian gods that Columbus and other Spaniards heard from the caciques and priests. The father of the cacique Guarionex prayed to his *zemi*, asking what would happen to the natives and their gods in the future. Before making this query he fasted five days and sorrowfully chastised himself, as the tribal ceremonial rites required. He finally received the answer that so far as the gods knew what would happen they would make it known, and that before many years passed there would come to the island certain men with long beards, and bodies completely clothed, who would sever men in twain with one stroke of their swords, bring fire and ashes, drive forth ancient gods, and destroy the customary rites of the people, shed their blood, and carry them into captivity. So much importance was attached to this response that it was customary to chant it in an *areito* sung in a ceremonial dance.

The same story is repeated, with some variation, by J. Villagutiere Soto Mayor,[c] who says that Guarionex consulted his great idol, or *zemi*.

[a] Herrera speaks of ceremonies for rain and crops. According to Fray Ramon Pane, the Haitians had a *zemi* called Boinaiel whom they held in great veneration and in whose honor they performed ceremonies when it did not rain.

[b] De la Borde, History of the Origin, Customs, Religion, Wars, and Travels of the Caribs, Savages of the Antilles in America, translated from the French and condensed by G. J. A. Bosch-Reitz. *Temehri*, v, 224-254, Demerara, 1886.

[c] Don Juan Villagutiere Soto Mayor, Historia de la Conquista de la Provincia de el Itza, Reducción y Progressos de la Lacandon, etc., pt 1, p. 33, 1701. This author repeats the story of the prognostication of the *zemi* of Guarionex, mentioned by Gómara and others, to whom he refers, and speaks of an *areito*, or song dance, performed in commemoration of the oracle.

as they call it, asking what would happen to his kingdom after his death. He and the other caciques spent five days without eating or smoking, bathing themselves with medicine. They wept and performed rites according to the usages, at the end of which the god responded that before many years there would come to Haiti bearded men, wholly clothed, who with one stroke could sever a man in the middle with swords, and these would bring ashes, destroy the ancient gods, and overturn accustomed rites, introducing new laws, and would shed the blood of his children and make them captives; and in memory of this the natives composed a song (*areitò*) which they sing in their festivals.

CEREMONY TO BRING CROPS

The principal ceremony of the Haitians, held apparently in honor of the earth goddess, is thus described by Gómara :[a]

Quando el cacique celebraba la festividad de su devoto, i principal Idolo, venian al Oficio todos. Atabiaban el Dios mui garridamente; ponianse los Sacerdotes como en coro junto al Rei, i el cacique à la entrada del Templo con vn atabalejo al lado. Venian los Hombres pintados de negro, colorado, açul, i otras colores, o enramados, i con Guirnaldas de Flores, ò Plumages, i Caracolejos i Conchuelas en los braços, i piernas por Cascaveles. Venian tambien las Mugeres con semejantes Sonajas; mas desnudas, si eran virgenes i sin pintura ninguna; si casadas, con solamente vnas como bragas. Entraban bailando, i cantando al son de las Conchas: saludabalos el Cacique con el Atabal, asi como llegaban. Entrados en el Templo, vomitaban, metiendose un palillo por el garguero, para mostrar al Idolo, que no les quedaba cosa mala en el estomago. Sentavanse encuclillas, i reçaban, que parecian Avejones, i asi andaba un estraño ruido. Llegaban entonces otras muchas Mugeres con cestillas de Tortas en las Cabecas, i muchas Rosas, Flores, i Iveras olorosas encima: rodeaban los que oraban, i començaban à cantar vno como Romance viejo, en loor de aquel Dios. Levantabanse todos à responder, en acabando el Romance, mudaban el tóno: i decian otro en alabança del Cacique: i asi ofrician el Pan al Idolo, hincados de rodillas. Tomabanlo los Sacerdotes, bendecianlo, i repartianlo, i con tanto cesaba la fiesta: guardaban aquel Pan todo el Año, i tenian por desdichada la Casa, que sin èl estaba, i sujeta à muchos peligros.

[Translation]

When the cacique celebrated the festival in honor of his principal idol, all the people attended the function. They decorated the idol very elaborately; the priests arranged themselves like a choir about the king, and the cacique sat at the entrance of the temple with a drum at his side.

The men came painted black, red, blue, and other colors or covered with branches and garlands of flowers, or feathers and shells, wearing shell bracelets and little shells

[a] Historia de las Indias, chapter xxvii, p. 22, 2d ed., Antwerp, 1554. This work, which has been published in several editions and many translations, contains much important material on the West Indian islanders. In the edition belonging to the present author chapter xliv, p. 34, gives an account of the discovery and noteworthy things regarding the island Borinquen, called San Juan. Chapters xxvi–xxviii contain a good account of the inhabitants of Española (Santo Domingo), their religion (xxvii), and their customs (xxviii). Gómara gives also valuable data concerning the customs of the aborigines of Cuba, the Bahamas, Jamaica, etc. The 1554 edition of Gómara is used by the author, who has also Gómara's Cronica de la Nueva España.

on their arms and rattles on their feet. The women also came with similar rattles, but naked, if they were maids, and not painted; if married, wearing only breechcloths. They approaching dancing, and singing to the sound of the shells, and as they approached the cacique he saluted them with the drum. Having entered the temple, they vomited, putting a small stick into their throat, in order to show the idol that they had nothing evil in their stomach. They seated themselves like tailors and prayed with a low voice. Then there approached many women bearing baskets of cakes on their heads and many roses, flowers, and fragrant herbs. They formed a circle as they prayed and began to chant something like an old ballad in praise of the God. All rose to respond at the close of the ballad; they changed their tone and sang another song in praise of the cacique, after which they offered the bread to the idol, kneeling. The priests took the gift, blessed, and divided it; and so the feast ended, but the recipients of the bread preserved it all the year and held that house unfortunate and liable to many dangers which was without it.

Benzoni's account[a] is essentially the same as that of Gómara.

Charlevoix's description of this ceremony differs from the accounts of some other authors, for he speaks of it as a solemn procession in honor of the gods.[b] His account likewise follows in general that of Gómara. Peter Martyr reports that among their gods they had one which they adored in the form of a female, who had a herald on each side, acting as a messenger to convey her orders to subordinate gods who caused rain to fall and crops to grow. The female idol he calls variously Attabeira, Mamona, Guacarapita, Liella, and Guimazoa, probably different names of an earth goddess or earth mother.[c]

A comparative study of this festival shows that it is a ceremony performed for the growth of crops. The idol is thought to represent the earth goddess and the heralds are supposed to be her messengers, as stated by Peter Martyr. The presentation of offerings is a prayer by signs, the devotees making known their desires by food offerings. The return of the gifts to the donors represents symbolically the answer to the prayers, and the dire effects supposed to follow if they were not preserved by the recipients, the distress that would follow absence of reverence for them.

The act of vomiting, common in all primitive ceremonies, has probably the same meaning in these rites as elsewhere, namely, self-purification. The sprinkling of the image with powder, probably tobacco, or cassava flour, mentioned in some accounts, is regarded as a form of prayer for food, and the songs in praise of the god and the cacique are intimately connected with ancestor worship. The images of the gods were sometimes washed with the juice of the yucca, a symbolic act, apparently a prayer for increase of this food plant.

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[a] History of the New World by Giolamo Benzoni, 1572, translated by Rear Admiral W. H. Smyth, Hakluyt Soc., 1857. He adds: "They worshiped two wooden figures as the gods of abundance."

[b] Pictures of this procession are given by Charlevoix and Picard, but these representations (plates IX, X) appear to be more or less fanciful, being made from the descriptions of Gómara and others.

[c] Mr. H. Ling Roth (p. 265) refers to an old parchment describing Indian witchcraft, where the queen of the tribe in Santo Domingo, having drunk the juice of the herb, *zamiaca*, and attired in a garment made of its fibre, consulted the spirits of her ancestors. She evidently personated the earth goddess, Zuimaco.

Du Tertre[a] and Laet have described among the religious practices of the Carib several rites closely resembling those of the natives of the larger islands. The greatest of their gods, he says, was called Yris, and to the sky god they gave the name Chemin, the linguistic affinity of which name with *zemi* is apparent. Maboya[b] is said to have the power of sending hurricanes and may be recognized as a sky god also symbolized by a great serpent. The designation appears in some writings to have the same meaning as *zemi*, or subordinate god, but with a wider application.

Du Tertre declares also that many *maboyas* were recognized by the Carib and that they had sex and multiplied like the human race. The probability is that in its original meaning the word *maboya* signified the magic power of the god Hurican and possibly at first was limited in its application, but that later it was given to a great number of lesser powers, good and evil, and used interchangeably with the word *zemi*.

SURVIVAL OF CEREMONY IN MODERN DANCES

It is believed that the dances of the modern Gibaros retained down to comparatively recent times elements of the aboriginal *areitos* and that in the eighteenth century this resemblance was very marked. Fray Iñigo, who has left a valuable description of the rustic dances, says in substance that the participants assembled at the entrance of the house where the dance was to take place, carrying their musical instruments, some of which recalled those of the Indians. The guests sang an appropriate song in honor of the host, as in the *areitos*, and the host, appearing then, invited them to enter. They greeted the head of the house as if they had not seen him for a long time. Entering, the women seated themselves on hammocks or seats, but the men stood on tiptoe or on their heels, and, singly or in pairs, began the ball. Each man carried a machete. The men invited the women to dance with them by placing their hats on the heads of those they wished for partners. When the ball ceased the women retired with a courtesy, returned the hats, and received each a coin (a medioreal). During the dance the slaves brought in drinks and tobacco. Very many of these balls occurred on feast days. People celebrated with a dance the birth or death of sons, and in the latter

[a] Père Jean Baptiste Du Tertre, Histoire Générale des Isles de la S. Christophie, Guadeloupe, de la Martinique et Autres dans l'Amerique, Paris, 1654. A most valuable account of the manners and customs, arts, and religion of the Carib; probably the source of Rochefort's work.

Juan de Laet's Historia del Nuevo Mundo ó Descripción de las Indias Occidentales; a translation of the original from the French is found in Tapia. It contains such portions of Laet's History as pertain to Porto Rico. The work was originally published in 1610.

[b] The prefix *ma* signifies great, while *boyi* or *boiaiko* is applied to both priests and gods; *ma boya*, great serpent.

case the ball continued until those assembled could no longer endure the odor of the corpse.[a]

It is highly probable that some of the prehistoric Porto Rican music survives in the negro dances called *bombas*, still celebrated by country people. The following words[b] of one of the aboriginal West Indian dances are given by Schoolcraft, who obtained them from Rev. Hamilton Pierson, who in turn received them from W. J. Simone, long a resident of Haiti:

Aya bomba[c] ya bombai
La massana Anacaona
Aya bomba ya bombai
La massana Anacaona.

According to Bachiller y Morales, Don Joaquín Perez states in his Fantasias Indígenas that the words *Igi aya bombe* are fragments of an *areito*. Each stanza of the Borinquen or national song of the Porto Ricans has in some versions the refrain *Aye, Aye, Aye*, a survival of some old *areito*.

"To return to their songs," says Charlevoix,[d] "which with them took the place of annals, as I have already remarked, they were always accompanied by circular dances in which the leader began alone and the rest followed. The leader regulated the step and the others imitated him, first in advancing and then in retreating, all the troop following his lead. Sometimes all the men danced on one side and the women on the other; at other times the two sexes were mixed, and then it was immaterial whether a man or a woman commenced the dance. But in the public feasts and on important occasions they sang or danced to the sound of the drum, which was ordinarily beaten by the most important man of the village or the cacique himself. The drum of which I have spoken was simply the trunk of a tree of cylindrical shape having about the middle of its length an opening."

BURIAL CEREMONIES

After a death they made fire, rubbing two sticks together, the act being connected in an esoteric way with the perpetuation of the life of the deceased. Among the common people, according to Herrera, the relatives solemnly cared for the skull of the dead. Relatives of a cacique frequently strangled him if it appeared to them that he was on the point of death. Some of the dead they took out of the house,

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[a] Dances are even now occasionally performed on the occasion of the death of an infant son, but they have almost wholly ceased.

[b] See Bachiller y Morales, Cuba Primitiva.

[c] A negro dance in Porto Rico is called *bomba*, this name being given also to the drum used in the dance—a hogshead over which is stretched a skin.

[d] Histoire de l'Isle Espagnola ou de S. Domingue, I, 39, Paris, 1730.

others they left within, placing the corpse in a hammock with water and bread. In both cases the house was deserted and shunned by the relatives. They believed that after death the deceased went to a valley (Coaibai) where their ancestors lived and where they would have many wives, plenty to eat,[a] and all kinds of pleasure.

Oviedo has given an account of the manner of burial of the dead, especially of caciques, which is instructive in a comparative study of the Antilleans and certain South American tribes. When a cacique died one of his wives was sometimes buried alive with the corpse, bowls of water and food, such as cassava bread and fruits, being placed with her in the grave At the interment of the Haitian cacique Behechio two wives were voluntarily buried alive with him. Wife burial was not always practised, the customary method of interment being to bind the body with bandages of woven cloth and to place it in a grave, with the jewels or treasures most prized by the cacique in life.

In order that the earth might not touch the corpse it was customary to make a crypt of sticks, in which the dead was seated in a decorated chair called a *duho*, after which the grave was filled in with earth above the wood and branches. For from fifteen to twenty days after burial the relatives and other persons, both male and female, sang dirges over the grave, and caciques of the neighboring territory came to do honor to the deceased. The family divided the property among the strangers who recited dirges and songs commemorative of important events in the life of the dead, telling of the battles he had fought and of other worthy deeds, the mortuary songs being accompanied by the dances called *areitos*. Among the Haitians the dead were inhumed, mounds of earth being raised over the graves.

From the similarity of the people of the two islands it would be supposed that the same custom was practised in Porto Rico, and this archeology has demonstrated. Mortuary offerings have been found in mounds as well as in caves, and later it will be shown that these mounds and cemeteries are situated near certain walled inclosures that are called by the country people *juegos de bola* or *bateys* ("ball courts").

Considerable light is shed on the nature of the mortuary dances of the West Indians by a comparative study of burial ceremonies among their supposed kindred living along the Orinoco river in South America, our knowledge of whose mortuary rites is more detailed than that which has been recorded by the early historians of the West Indies. Gumilla in 1745 gave a description of the elaborate mortuary dances held by the Saliva near tumuli, on the Orinoco, at the death of their caciques. The Antilleans also appear to have performed complicated mortuary dances, or *areitos*, in the so-called ball courts or dance places and near the adjacent tumuli outside the inclosure.

[a] The dead were believed to live on a fruit about the size of a quince, called *guanabana* (sour-sop).

These mounds are graves of caciques or other dignitaries, a fact indicating that the burial customs of the Borinqueños approached more closely those of the Saliva than of any other of the Orinoco tribes, of which Gumilla describes a number differing in many respects from one another.

The Guarano, commonly called the Warraus, who live on the many islands of the delta of the Orinoco, according to Gumilla place their dead in the water and allow fishes (*guacaritos*) to strip the corpse of the flesh and soft parts; the skull and other bones are then preserved in a decorated basket, which is hung from the roof of the house. Considering the relationship between the prehistoric peoples of the West Indies and the Orinoco tribes, this custom among the Guarano is highly significant. The mortuary customs of the Indians of the Orinoco vary greatly, and probably the same statement is applicable to the customs of the different West Indian islands. There is no evidence that the Porto Ricans treated the dead in the way just described, which is a custom characteristic of the Guarano. But throughout the West Indies, as among the tribes of the Orinoco, especial care seems to have been taken to preserve the skeletons of the deceased. There is evidence that the Carib of the Lesser Antilles sometimes placed their dead in earthen jars, as recorded by im Thurn in speaking of a small island called Ballineux that was used as a cemetery. The Jamaicans placed their dead in caves or sometimes interred the bones, deposited in urns. In the caves the bones were not buried but simply laid out on the cave floor. That the Jamaica Indians did the same is recorded by Sir Hans Sloane.[a] "I have seen in the woods," says this writer, "many of their bones in caves, which some people think were of such as had voluntarily inclosed or immuned themselves, in order to be starved to death." He refers to a man who saw, in the year 1677, "a cave in which lay human bones, all in order, also pots and urns wherein were bones of men and children." These pots were large and oval and of a dirty reddish color. "On the upper part of the rim or ledge there stood out an ear, on which were made some lines." The negroes had removed most of these pots to boil their meat in. "The dead," writes Charlevoix, "were treated by the use of fire, but were not interred until they were thought thoroughly emptied and dried by the fire."

According to Gumilla the Orinoco Carib inter the bodies of the dead with bow, arrows, wooden clubs, shield, and other arms on one side of the corpse and one of the wives on the other. When this act has taken place in their mortuary ceremonies the son of the cacique inherits his father's position and his wives. At the beginning of the year they exhume the dead, place the remains in a basket, and hang

[a] Sir Hans Sloane, A Voyage to the Islands of Madeira, Barbadoes, Nieves, St. Christopher's, and Jamaica, 2 vols., London, 1725.

them in the house for perpetual reverence and memory. Such preserved heads were probably seen by the Spaniards in the houses of the insular Carib and led to the circulation of distorted stories of cannibalism. The Guarano also, according to Gumilla, preserved the bones of their ancestors in their houses, the flesh first having been removed by aquatic animals.

The habit of preserving skulls, bones, or other parts of the body as objects of worship seems to have been universal among the West Indians. It is mentioned in all older accounts of the Haitians. The method of preparing and the subsequent care of the skull and other bones of the dead among the Orinoco tribes, as described by Gumilla, show some analogy with the customs of the ancient Antilleans. The Arawak exercised the same care as is recorded by Oviedo of Haitian burials, to prevent contact with the earth. Brett,[a] in an account of an Arawak dance called a *maquarri*, gives among many others the following especially instructive episode:

> The dance was given in honor of a deceased female, who had been buried in the house. A broad plank lay on her grave, and on it were placed two bundles containing the refuse of the silk grass of which the whips were made, which had been carefully preserved. There were also two pieces of wood, rudely carved to resemble birds, and two others which were intended to represent infants. At a signal from the master of the house the dancing ceased; and all the men, arranging themselves in procession, went round the house with slow and measured steps, the plank and wooden images being carried before them. After this they arranged themselves near the grave, and one of them chanted something in a low voice, to which the others answered at intervals with four moans by way of chorus. The articles carried in the procession were then taken to a hole previously dug in the earth and buried there. Two or three men appointed for the purpose then drew forth their long knives, and, rushing in among the dancers, snatched the whips from them, cut off the lash from each, and buried them with the other articles.

Future investigation of the burial mounds of the Porto Ricans will no doubt bring to light similar objects buried with the dead in these places, but thus far, with the exception of a stone mask, nothing has yet been found to parallel this custom of the Venezuelan Arawak.

Iñigo, speaking of the burial customs of certain people of his time (the eighteenth century), remarks that, while the dead were commonly interred in the churches, those that had died of an epidemic were buried at the foot of a tree on their farms, and that their bones were disinterred later and carried to the church, where honors were paid to them.

MYTHS

The West Indians, like all primitive peoples, had many fables and traditions, some of which were reduced to song and recited in dances. The Indians of Hispañola believed that the sun and moon came from

[a] Rev. W. H. Brett, The Indian Tribes of Guiana, their Customs and Habits, p. 156, London, 1868.

a cave, which they called Giovovava or Jovobaba and regarded with great reverence as the place of human origin. It formerly contained two small idols of stone, human figures with their hands bound, called Boinaiel (Sun) and Maroio (Moon), each about a yard long. It was popularly believed that these idols appeared at times to sweat. The natives held them in great respect and, according to Pane, made them large offerings and resorted to them to pray for rain for the crops. This cave was situated in the land of a cacique named Mauci Tiuvel.

There was a tradition that the dead went to a place called Coaibai, in a district of the island called Soraia, and that their spirits, *opia*, remained there in daytime, but delighted to come forth during the night and appear to the living in the forms of men and women. Consequently, an Indian would seldom venture out alone in the dark and then only with fear.[a] It was said that a native once met one of these spirits, in consequence of which he disappeared and found himself attached to a tree.

The aboriginal Porto Rican tradition of the creation of women was that they were created for men from four eagle-like beings possessed of feet and hands. A bird similar to a woodpecker (*picaca*), believing that these beings were wood, pecked at their privates and thus formed women.

According to Gómara the Indians of Haiti preserved as a relic a calabash, from which, as they believed, came the sea and all its fishes. A fable of how the sun turned certain fishermen into trees (*jobo*) appears in several legends of these Indians.

Fray Ramon Pane, who was one of the few priests who could speak the Tainan language of ancient Haiti, has preserved a number of the traditions of the natives of that island. Some of these were published in the Life of Columbus, ascribed to his son, the authenticity of which Harrisse questions. Pane's record of the traditions and religions of the prehistoric people of Haiti, however, is looked upon as worthy of credence. While the author regrets that he has not here the space to give a full or satisfactory résumé of this work, he has introduced a few significant legends recorded by this priest. The story of how the sea was made is especially interesting.

There was once a man named Yaya or Giaia, whose son, called Yayael or Giaiel (Earth),[b] sought to kill his father and was banished to a place where he remained four months, after which his father killed him, and put him into a calabash, which he hung to the roof of his cabin, where it remained a long time. Yaya went one day to see his son's bones, and, having taken down the calabash and opened it, found instead a multitude of fishes, great and small, into which the bones had been changed. Yaya and his wife decided to eat these

[a] The spiritualism so common among the Gibaros is a survival of this old belief recorded by Pane.
[b] The termination *el* means son; Giaiel, son of Giaia.

fishes, but one day, when Yaya had gone to his farm, there came to his house the four sons of Itaba-Yanuba (Itiba Tahuvaca), who died at their birth. The first-born was called Caracol, "shell;" the others had no names. These four sons of Itiba-Tahuvava, having examined the calabash, resolved to eat the fishes. As they set about it they were suddenly surprised by the return of Yaya and attempted to hang up the calabash again, but it fell to the earth and was broken. All the water poured out, covering the earth and forming the sea, carrying with it the fishes, which became its inhabitants. Benzoni also speaks of the calabash, out of which had come the sea with all the fishes, that was kept as a relic. This tradition, which has sometimes been regarded as a story of the deluge, is one of those widely spread accounts of the water covering all the earth found among most of the aboriginal tribes of America. The calabash or gourd was preserved by the natives as a ceremonial object to which great sacredness was attached.

TRADITIONS OF ORIGIN

According to Ramon Pane the Indians related that there was in one of the provinces of Haiti, called Caanan, a mountain, Canta, in which were two caves, known as Caci-Bagiagua and Amaiauva. The natives of the island believed that their ancestors emerged from the first of these caves, but that other people still remained in the other cavern, which was guarded by Marocael. The guardian was once surprised by the closing of the entrance of the cave by the sun and turned into a stone. Another legend tells how certain men who went fishing were turned into trees, called *jobos*, by the shining of the sun upon them.

"The first people," says Charlevoix[a], who apparently drew his information from Ramon Pane,[b] Peter Martyr, and others, "are said to have come from two caves in the island of Haiti, and the sun, irritated at their exit from the earth, changed the guardians of these caverns to stone, and metamorphosed the people who escaped from their prisons into trees and into all kinds of animals. This thoroughly aboriginal story, which in some variants goes on to tell of the loss of the women and how their children were turned into frogs, crying *toa, toa*[b] ("frog, frog"),[c] occurs in several early folk tales. Another tradition says that the sun and the moon came to light the world from a grotto in the same island, and that the people made pilgrimages to this grotto, whose walls were ornamented with paintings, and whose entrance was guarded by demons, for whom one had to perform certain ceremonies before they would allow him to pass.

The beings called *Cacaracol* (plural of caracol) appear in many stories as monster gods, with scabby or rough skins, but the spelling of their

a Histoire de l'Isle Espagnole ou de S. Domingue, I, 38, Paris, 1730.

b Pane says the children were changed into *tona*, or little creatures like dwarfs.

c *Toa* means also "breast," and possibly the children were clamoring for milk or for their mothers.

name varies so greatly in different writings that at times it is almost impossible to recognize it.

A MODERN LEGEND

There is a rich field for research in both Santo Domingo and Porto Rico in the study of survivals of Indian folklore among the so-called Gibaros. Señor Federico Vall y Spinosa has published one of these modern legends:[a]

The Sierra Luquillo mountains lie along the northeastern coast of Porto Rico. Among them, higher than the rest, standing out proudly and serenely, stands El Yunque, the loftiest peak in the land over which Boriquen ruled many years ago. These mountains are thickly wooded, containing the few forests left to the island, and these are slowly disappearing under the woodman's axe. It is now only a question of time when Porto Rico shall consist of one clump of beautiful, but bare mountains.

Standing face to face with El Yunque and raising its head almost to a level with this majestic peak, another one, called Cacique, is prominent in the Sierra. The top of this peak consists of a large rock which has a small inclination, causing an indenture on one side, which is commonly termed the cave. It is with this rock that my legend is concerned.

As is the case in all mountain regions, around this height many legends exist and are handed down from generation to generation by the peasants dwelling near. During a short stay among them it was my good fortune to listen to a number of them, and I give this one as taken from my notebook:

"King Cacique was a good and powerful monarch, who ruled over the northern coast of Porto Rico in the days of yore, when spirits were supposed to wander on mother earth.

"El Enemigo, as my fair story-teller called him, or the devil, as the Bible says, used then to wander in disguise amongst the mortals, trying to dissuade the true ones from their career. Cacique was one of those whom the Evil Spirit worked hardest and longest to win over, but, seemingly, without success. His strong will overcame all obstacles and temptations thrown in his path for a long time; but the Evil One was not satisfied to be daunted or deprived of his prey.

"He worked incessantly and spared not a chance to tempt. Finally, one day, when Cacique had returned from his work, tired and weary, and the Evil Spirit had commenced his taunts again, in a rash moment of despair he turned on his tempter and said:

"'If you can take me to yon mountain,' pointing to El Yunque, 'without getting my feet wet, I will do as you will.'

"It was a sad hour for Cacique when he uttered these words, for no sooner had they left his mouth than the Evil One took him through the air, over rivers, hills, and mountains, to El Yunque. Once there, the Evil One told him who he was, and said that he was his prisoner.

"Then and there el Enemigo pronounced his sentence: 'You shall be shut up for the rest of your days in yonder mountain,' and he pointed to the peak where Cacique rock stands to-day, and to make sure of him he covered the opening with this rock. Before being locked up Cacique by implorations obtained from the Evil One permission to have with him his wife and daughter, whom he had left in the plains. This request granted, his wife, accompanied by her daughter, a young and charming princess, shared his quarters of captivity. This young princess, having barely

[a] A Legend of King Cacique, *San Juan News*, Dec. 26, 1901.

reached her teens, was naturally of a joyous disposition, and liked, above all things, to romp and play in the fields.

"After they were locked up and the Evil One had covered the top with the stone, another urgent pleading on the part of Cacique caused to be left a small opening (the mouth of the cave), in order that Cacique might see every now and then the blue sky and breathe a little pure air.

"The young princess, who had maintained a silent demeanor during this time, jumped up with a joyous shout when the Evil One had left. Her parents were astonished at her actions. She ran to a thin but strong vine which was growing in the interior of the cave, such as is called by the mountaineers 'bejuco,' and, hauling herself up hand over hand, soon reached the small opening at the top. Once there, what was the surprise of her parents to see their beautiful young pearl force her tiny body through the small aperture. On reaching the open air the young girl met a mountaineer called Juan, who gave her some honey which he had gathered. This she took to her parents, and all rejoiced.

"The Evil One found it out and wanted to close the opening, but the pitiful plea and pearly tears of the young princess finally made him compromise as follows: The opening should be left open forever, but she could talk to no one but on one day in the year, which should be San Juan's day, and then only to a first-born son whose name should be Juan. And the time was limited to the glimpse of daylight seen before the sun's rays struck their habitation."

It is a long time since this happened, and, the writer has been assured, several Juans have talked with her, although he could never obtain an interview with one of those privileged human beings. However, the young peasant woman who related this tale to me assured me that there existed no doubt on that subject, and, indeed, it seemed to be taken for granted that it is true.

In the course of her tale, when alluding to the beauty of the princess, she noticed the eyes of my young guide sparkle and she immediately remarked: "Oh, that was hundreds of years ago, and she must be quite an old woman by this time."

In connection with this tale, the following incident was narrated to me, which seemed to prove to the majority of these peasants the authenticity of the story:

A Spaniard once climbed to Cacique rock, accompanied by a large Newfoundland dog. The opening at the mouth of the rock must not be entered by anyone, as this angers Cacique. It appears that, as the dog could not talk, he went into the cave, and, in spite of the anxious calls made by its master, has not been heard from up to this date.

If any of the readers of these pages is qualified, under the conditions required by El Enemigo, to talk with the once fair princess, the writer will gladly accompany him on San Juan's day to Cacique, in order to obtain what perhaps might be an interesting interview with the enchanted princess of Cacique rock.

THE NAME BORINQUEN

In his letter[a] to the Catholic monarchs Columbus states that the natives of the islands that he had discovered did not differ in customs

[a] R. H. Major, Select Letters of Christopher Columbus.

nor in language (en la lengua). In this diary, as given by Las Casas, he says that the Indian women taught the Spaniards to carry on trade in their language, which is "one in all those islands (la qual es toda una en todas estas islas de India)," referring, of course, only to those discovered on the first voyage.

We are told that the Catalan priest Fray Ramon Pane spoke one of the Haitian dialects, and doubtless other priests were familiar with different ones; hence it is a matter of surprise that no written specimen of the language is extant—not even a paternoster or a printed page. The early missionaries have left us no catechism or vocabularies such as are valuable aids in the study of the aboriginal languages of Mexico. The speech of prehistoric Porto Rico has passed out of practical use without adequate record. While there is no person in the West Indies who can now speak the Tainan language, there is a possibility of gathering a fair vocabulary of this lost tongue, and thus increasing our knowledge of the general structure of the ancient West Indian language, from three sources: (1) Antillean words which occur in the early histories of the islands, mostly names of caciques and of plants, animals, and the like; (2) geographical place names, of which there are many still in use, and others recorded on ancient maps[a] and charts; (3) substantives and phrases of Indian origin that still survive in folklore or the speech of natives. All three of these sources have been used to a limited extent by native historians, by Señor Coll y Toste[b] and others in Porto Rico and by Bachiller y Morales[c] in Cuba. We have one or two vocabularies, like that of Brasseur de Bourbourg, Brinton's Arawak Language of Guiana, and works, like that of Spinosa, containing lists of exotic words, some of which are Indian survivals, are of special value. When all the Antillean words gathered by these methods are united in a vocabulary its size will astonish the linguist, and by the use of such a list it may be possible to detect some of the more important principles in the structure of the language. It is not too much to hope that some manuscripts or some printed paternosters or translations of church prayers, now hidden away in old Spanish libraries or monasteries, may be brought to light in the course of research, stimulating a new interest in the linguistics of the Antillean race.

The language of ancient Borinquen was the same, with dialectic variations, as the Tainan spoken in Haiti and Cuba, but it had many

[a] For instance, Juan de la Cosa's map on oxhide, in Madrid. The author has used for his study of this map the facsimile in color, published in 1892, on the occasion of the Historical Exposition in Madrid. The original is now in the Museo Naval at Madrid. Cosa's map, which has been often republished, is valuable for Indian names of the islands. See the chapters headed "Juan de la Cosa" and "El Mapa de Juan de la Cosa," in Coll y Toste's Colon en Puerto Rico. Padre Nazario, in an article entitled "El Mapa Mundi de Juan de la Cosa," concludes that the map is apocryphal and not the work of Cosa.

[b] Cayetano Coll y Toste, Colon en Puerto Rico, Puerto Rico, 1894. This work contains an important discussion of the letter of Doctor Chanca, with a reprint of the same.

[c] Cuba Primitiva, 2d ed., Habana, 1883; see also Vall y Spinosa, Compendio de la Nonsina, Puerto Rico, 1887.

Carib words derived from the Lesser Antilles. Similar words are frequently heard in the island patois and among Venezuelan tribes, as has been pointed out by Torres, Lucian Adam, Brinton, and other writers. Many Tainan words, as hamac, canoe, tobacco, key (island), have become anglicized and are now universally used in the West Indies and on the neighboring mainland.

The Indian name of Porto Rico is variously given in the different early accounts, and probably the Carib designation, *Boriquen*, was a dialectic variant which Columbus heard in the Lesser Antilles. The name *Baneque*, mentioned in Columbus's diary, was probably a Lucayan variant. Although affixed to a smaller island north of Haiti on several maps, Torres has shown that this is the same as the Carib Borinquen. As a result of his scholarly examination of the three elements, *Bo-ri-quen*, Coll y Toste arrives at the conclusion that the proper spelling of the name of the island is Borinquen. After a critical discussion of the name of the island as spelled by others, Torres says,[a] in part, as follows:

> We believe that the word *Borinquen* or *Bo-ri-n-que-n* is composed of the following elements: *bo* which expresses the general idea of *man, master; ri* which denotes the absolute conception of *valor, force;* the prefix *n* which signifies *of them, of the;* the root *que,* which entails the signification *earth;* and *n* final sign of plural.

Borinquen, with accent on the *i*, would then mean "land of valiant masters" or "fatherland of powerful men."[b]

The speech of the ancient people of the island Borinquen is considered by some authors to be a Tainan dialect called Eyrie, but there seems no good reason, on account of dialectic variation, to separate aboriginal Porto Ricans from the other West Indians, whom they clearly resemble in customs and language. All belong to one and the same stock, but from their proximity to the Carib the Porto Ricans were naturally more warlike, and the presence of slight variations in their language indicates no difference in race kinship.

ARCHEOLOGICAL SITES

In addition to the preceding information regarding the prehistoric Porto Ricans, obtained from historical accounts or from ethnology and folklore, we have that afforded by a study of prehistoric objects found in the soil, in caves, or on village sites. These can often be interpreted by the writings of the Spanish historians, and they also present evidence in themselves of the character of the long-extinct people that manufactured and used them. Archeology is thus able to illuminate obscure chapters overlooked or unrecorded by the historian and ethnologist.

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[a] Luis Lorens Torres, America; Estudios Históricos y Filológicos, Madrid, 1898.

[b] It will be noted that this spelling of the ancient name of the island introduces the letter *n*, and in that respect differs from that of Coll y Toste and others. The objection to the omission is well presented by Torres, who points out that the three elements *bo-ri-quen* mean simply "man-force-lands," and need the connective *n* and the final letter to bring out the correct meaning.

It offers the only exact data by which the manners and customs of the aborigines before the advent of Columbus can be interpreted.

As the author has sought to indicate in the preceding pages the life of the aborigines as shown by the historians, in the following pages he will try to supplement this account by descriptions of the prehistoric objects preserved in the Smithsonian Institution, suggesting, when possible, their use and meaning. As has been shown by the historical data already presented, the aboriginal race which peopled the island of Porto Rico was not confined to it but extended to the neighboring islands. Indeed, much that we know through historical sources of the customs and beliefs of the Borinqueños is based on their resemblance to the natives of Haiti, whose manner of life has been described by several early writers. It is therefore legitimate in discussing the archeological data bearing on the aboriginal culture of Porto Rico to introduce studies of prehistoric objects from neighboring islands. From comparative evidence of this kind our knowledge is greatly enlarged, but it must always be borne in mind that certain types of archeological objects are peculiar to certain islands, and that each island has objects of human make which are characteristic. Numbers of prehistoric Porto Rican antiquities occur in three different places, namely, in shell heaps, in caves, and in or near inclosures called *juegos de bola* ("ball courts"), also *cercados de los Indios* ("Indian inclosures"). Excavations have been made in all these sites but the field can not yet be said to have been worked with any scientific completeness, and much material awaits a more extended exploration. Indian objects are found also scattered at random over the whole island, being met with in unexpected places. Men pick them up while plowing in the fields, digging ditches, or making foundations for buildings. The amount of prehistoric material awaiting discovery must be great, for although no systematic attempt has yet been made to bring it to light, collections obtained by chance are comparatively large.

Dance Plazas

At various places on the islands of Porto Rico, Cuba, and Haiti there are found level spaces inclosed by rings of stones, called by the natives *juegos de bola* or *cercados de los Indios*. In former times these structures were much more numerous and more evident, but many of them have been destroyed, so that only a few well-preserved examples now remain. These inclosures generally have a rectangular shape and are ordinarily supposed to have been constructed for ball games. Doctor Stahl mentions certain of these structures in the mountainous districts near Utuado and at the sources of the Bayamon and Manati rivers, and calls attention to the probability that the majority have been destroyed, their flat boundary stones having been used for pavements or other purposes. Doctor Stahl writes also of

one of the inclosures between the district of Comerio and Barranquitas and of others in the districts of Jallulas and Hatillo.

While ball games may have taken place in the inclosures just described, it seems more probable from their mode of construction, situation, and other features that they were used as dance courts, in which were celebrated some of the solemn religious ceremonies of the clans. It is conjectured that the rows of stones which surround these inclosures are the remains of seats.

A short distance outside the inclosures there are generally found tumuli, mounds of earth which were used for burial of the dead. These structures are not confined to Porto Rico; similar inclosures surrounded by stones occur in other West Indian islands.

J. G. Müller, in his history of the aboriginal American religions, speaks of one of these dance places discovered by Schomburgk[a] in Haiti, near San Juan de Managua, where there was a ring of granite stones, 21 feet thick, which measured 2,770 feet in circumference. In the center of this circle was a rock, 5 feet 6 inches in height, partly buried in the soil, which Schomburgk supposed to be an idol. He ascribed these structures to a race antedating the Indians that Columbus found on the island.

In his report in the Proceedings of the British Association for 1851 Schomburgk gives a more detailed description of the rock inclosure near San Juan de Managua:

> A far more interesting discovery than those heaps of conch shells, made during my travels in Santo Domingo, is, however, a granite ring in the neighborhood of San Juan de Managua, which seems to have entirely escaped the attention of previous historians and travelers. Managua formed one of the five kingdoms into which Santo Domingo, on the arrival of the Spaniards, was divided. It was governed by the Carib cacique Caonabo (which name signified rain), the most fierce and powerful of the chieftains, and the irreconcilable enemy of the Europeans. The granite ring is now known in the neighborhood under the name of "el cercado de los Indios," and lies on a savanna surrounded with groves of wood and bounded by the river Managua. The circle consists mostly of granite rocks, which prove by their smoothness that they have been collected on the banks of the river, probably at Managua, although its distance is considerable. The rocks are mostly each from 30 to 50 pounds in weight, and have been placed close together, giving the ring the appearance of a paved road, 21 feet in breadth and, as far as the trees and bushes which had grown up from between the rocks permitted one to ascertain, 2,270 feet in circumference. A large granite rock, 5 feet 7 inches in length, ending in obtuse points, lies nearly in the middle of the circle, partly embedded in the ground. I do not think its present situation is the one it originally occupied; the rock stood probably in the center. It has been smoothed and fashioned by human hands, and, although the surface has suffered from atmospheric influences, there is evidence that it was to represent a human figure; the cavities of the eyes and mouth are still visible.
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> This rock has in every respect the appearance of the figure represented by Père Charlevoix in his Histoire de l'isle Espagnole ou de Saint Dominigue, which he des-

[a] Sir Robert Schomburgk, Ethnological Researches in Santo Domingo, in the Report of the British Association, p. 90–92, 1851. See also Bachiller y Morales's quotation from J. G. Müller's Amerikanische Religionen, also an article in the *Revista de la Habana* in which he describes the so-called *cercados de los Indios* of Santo Domingo.

ignates as a "figure trouvée dans une sépulture Indienne." A pathway of the same breadth as the ring extends from it, first, due west, and turns afterward at a right angle to the north, ending at a small brook. The pathway is almost for its whole extent overgrown with thick forest; I could not, therefore, ascertain the exact length. No doubt can exist that this circle surrounded the Indian idol, and that within it thousands of natives adored the deity in the unshapen form of the granite rock. But another question remains to be solved, namely, were the inhabitants whom the Spaniards met in the island the constructors of this ring? I think not.

The inclosure above described is apparently the same as that referred to by F. A. Ober,[a] who writes regarding one of the dance places in Santo Domingo as follows:

The southwestern portion, especially where dwelt Anacaona [b] and Henriquillo,[c] is rich in what I may term surface indications; and it is in this district, in a valley in the mountains, that the remains of a large amphitheater, enclosed by great rocks, are to-day seen near the spot where Caonabo was captured. This amphitheater is supposed to have served as the arena for the exercise of a peculiar game of ball in which the Indians indulged, somewhat similar to that to-day practiced by the Basques.

It was probably in this dance plaza, or one of like construction, in the province of Xaragua that the cacique Anacaona gave the reception to Bartholomew Columbus which Herrera has described in detail. When Bartholomew Columbus, with his troop of 300 men, came to Xaragua, he was received by all the nobles of the province with dances, songs, and other amusements. Thirty women of the royal household, naked except as to such garments as hung from their girdles, bearing green boughs in their hands, approached the Spaniard with song and dance, knelt before him, and offered him what they carried. These were followed by others, and the white visitors were taken into the presence of the cacique, where there was spread a feast of cassava, utias, fish, and other delicacies. On the following day the Spaniards were treated to an exhibition in which two troops of the Indians engaged in a mock battle, during which some of their number were killed.

The Porto Rican *juegos de bola* were first described by Doctor Stahl, who speaks of several of these inclosures in different parts of the island. According to this author, these sites are formed of laminated stones of different sizes, placed vertically in position, and forming inclosures of rectangular form measuring 15 meters, more or less, in size, the walls being slightly elevated above the surface of the ground. Some of these structures, on account of the want of protection, have

[a] Aborigines of the West Indies, in *Proceedings of the American Antiquarian Society*, p. 24, Worcester, 1894. See also his In the Wake of Columbus, Boston, 1893, and his Porto Rico and its Resources New York, 1899.

[b] The cacique Caonabo lived near the pueblo San Juan Managua, his wife being a sister of Behechio, cacique of Xaragua, whose village was at the head of the lake of that name.

[c] The cacique Henriquillo headed the last outbreak of the Haitians against the Spaniards and later received a pueblo called Boya, north of the city of Santo Domingo, where survivors of the Indians were living in 1723.

disappeared, and the remainder have been partially destroyed, so that it can not be determined whether the walls once completely surrounded the inclosure or whether passageways were left in the corners or other places. Doctor Stahl mentions one of these sites near the source of the Bayamon river, on the border of Aguas Buenas and Bayamon. Another was found on the banks of the Manati river, in the high mountains of Corosal.

The ball courts examined by the present author were situated for the most part on terraces or on land fringing rivers, elevated high enough to be above freshets, and yet lying in river valleys that could be cultivated. The center of the inclosure is ordinarily lower than the surrounding plain. In most instances the alignment of the stones has been disturbed, and none of these structures which has been examined has an unbroken surrounding wall. As a rule, only a few of the stones which once composed them now stand upright. Many of these structures are now found in the mountains but there is good evidence that in prehistoric times they were most numerous on the coastal plains. The latter regions are now given up mostly to sugar cultivation and have been planted with cane for so many years that all traces of aboriginal structures in them have been completely obliterated. Along the banks of the Rio Grande de Arecibo and its tributaries there are still found many remnants of ball courts, especially in the high mountains in the middle of the island. At present the best preserved are found near the towns Utuado and Adjuntas. There is a good specimen about 50 steps from the main road between Utuado and Adjuntas, just north of the latter town.

During his archeological studies in Utuado in 1903 over 20 *bateys* were brought to the author's attention, the most important and best-preserved being somewhat distant from that town. The following may be mentioned as the best known: (1) Cayuco, (2) Arenas, (3) Salto Arriba, (4) Vivi Abajo, (5) Jayuya, (6) Mameyes, (7) Paso del Palma, (8) Alonso, (9) Alfonso, (10) several in the barrios of Utuado.

Just outside the boundary wall of every one of the inclosures studied by the author there were found one or more low mounds which bear superficial evidences of having been made by human hands. Excavations in one of these mounds near Utuado were made by the writer in 1903, and a brief reference to the result of his work appears in the following quotation from his account of Porto Rican pictography:[a]

> In my studies of one of these inclosures at Utuado I found that the main road from that town to Adjuntas had cut through the edge of one of the mounds,[b] revealing, a few feet below the surface, a layer of soil containing fragments of pottery, a few broken celts, and the long bones of an adult. This discovery induced me to extend a trench diametrically through the mound, parallel with the sides of the

[a] *American Anthropologist*, n. s., v., no. 3, 457, 1903.

[b] The author identifies these mounds with the *caneys* mentioned by Antonio Bachiller y Morales in his well-known work, Cuba Primitiva.

inclosure. The depth of this trench, at the middle of the mound, was about 9 feet. The excavation revealed that the mound rested on a hard gravel base and was composed of soil so rich that some of it was carried away by the neighboring farmer for use as fertilizer. This earth was very moist and ill adapted to the preservation of bones or other fibrous material. Nevertheless, we found ten skeletons of adults and infants, with mortuary objects so distributed as to indicate that they had been placed there as offerings. One of the best preserved of these skeletons was found in a sitting posture with its legs drawn to its chest and with ceramic objects lying at one side. The frontal bones of the skulls were abnormally flattened, as in those from the caves in the northern part of Santo Domingo, described by Doctor Llenas.[a]

The discovery that these mounds are Indian cemeteries sheds light on the nature and use of the neighboring inclosures. The conclusions drawn from my excavations of the Utuado mounds are that large numbers of the dead were buried just outside the dance courts and that the elaborate *areitos*, or mortuary dances, were held in the latter. There is evidence also of the interment of the dead in caves, human skeletons from the cave at Jobo, near the road from Arecibo to Utuado, having been given to me by Doctor Cabello. But the majority of the prehistoric Porto Rican dead were undoubtedly buried in the cemeteries above referred to.

Of the nature of the dances performed by the Antilleans at the time of interment little is known; but, from what has been described by Gumilla as occurring among the kindred Orinoco tribes, it is probable that they were very elaborate. One custom is specially noteworthy. Among certain of the latter tribes it was the habit to place staves around the grave, to the ends of which were tied stone effigies of the heads of the totems of the dead. Apparently this custom was practised by the people who lived near Utuado; in corroboration of this statement it may be mentioned that a stone face was found on or near the mound. This specimen resembles the so-called masks described and figured by Mason, but its size and general shape preclude its use as such. Moreover, certain other objects of the same general shape have a groove on one side, wherein is fitted a staff to which the whole object was tied. There is good evidence that these so-called stone masks were really mortuary emblems which were fastened to sticks and placed around the graves of the dead, where they remained for some time, especially when dances were being performed in their honor.

In considering the use to which the Indians put these inclosures, Doctor Stahl points out that if they marked the dwellings of chiefs, the walls, over which a child might jump, would be useless for protection. The boundary stones were not placed in line to indicate burial places,[b] although cemeteries were not far away, for the inclosure is sunken below the level of the adjacent plain. The popular theory

[a] Découverte d'un Crane d'Indien Cigüayo a Saint-Domingue, Nantes, 1891.

[b] The ancient Porto Ricans had evidently several modes of burial, as Oviedo asserts in regard to the Haitians. The cemetery in the valley of Constanza, mentioned by Schomburgk (*Athenæum*, p. 797-799, 1852), may have been similar to that near Mameyes.

that they were places for ball games is no doubt sound so far as it goes, but these were only one of many kinds of gatherings held by the prehistoric Indians of Porto Rico.

The general appearance of these inclosures, with idols and pictographs carved on some of their boundary stones, and the presence of neighboring mounds, some of which were burial places, others the sites of prehistoric pueblos, confirm my belief that they were plazas in which were celebrated the ceremonial dances called *areitos*, and especially those mortuary rites of ancestor worship which reached so high a development among the prehistoric Porto Ricans. Here were performed dances commemorative of the dead interred near by, and here songs were sung in memory of ancestors, as Oviedo and others have stated.

In addition to ceremonial *areitos*, games also no doubt took place in these inclosures, which correspond in a measure to the plazas of the Pueblos of our Southwest, which are used for all public functions.

The Indian town must have been near by, for Oviedo says that near each pueblo there was a place for *batey*, or the ball game.[a] The name locally given to these inclosures has a foundation in tradition, and while they may have been used by the Indians for games, the presence of the adjacent cemeteries indicates that they were used also in the performance of mortuary dances, of which the Porto Rican aborigines had many kinds. But as games among the Antilleans were probably half secular and half religious, there is no reason why they should not have been performed in plazas sometimes used for the purely ceremonial dances (*areitos*).

The discovery of stone balls in these inclosures is often mentioned as an indication that these places were used in ball games, implying that the stones were the balls used. This belief, which is a common one among the country folk of the island, finds little support from examination of the objects themselves. In Oviedo's account of the game, the ball used is said to have been made of a resinous gum, so that the stone balls do not fit at all his description of the method of playing the game. Indeed, some of the larger stone balls, which are more than 2 feet in diameter, could hardly be carried by a single man. Moreover, many of the balls are not spherical, but are simply water-worn bowlders having the form of oblate or prolate spheroids. Considering these facts I have serious doubt whether the stones could have been used in the kind of ball game described by Oviedo, although this does not, of course, preclude their use in some other game.[b] Their

[a] The prehistoric Porto Ricans did not build permanent stone or adobe habitations, but only temporary structures with wooden frames and palm-leaf covering. These have long ago disappeared, but their sites still remain in the form of mounds just outside the *juegos de bola*. In Muñoz's description of an Indian pueblo near the coast no mention is made of a *batey*, or dance plaza.

[b] The game may, for instance, have been the same as that played in Mexico, the courts, *tlachtli*, for which are found near many ruins.

presence in graves and in dance plazas indicates that they were sufficiently prized to have been brought there for a purpose, and I offer the following speculation as to their use:

Water-worn stones are symbols of running water, the worship of which is highly significant in the rain ceremonies of primitive agriculturists. In the confusion of cause and effect, so common among aboriginal peoples, these stones, shaped mainly by running water, are believed to have magic power to bring rain or to cause water to fill the stream beds. Hence they were gathered by the Indians and carried to dance and other ceremonial places, where they are now so commonly found. We find that water-worn stones are often worshiped by primitive agriculturists because of the belief that these objects cause the water, which has given them their form, to increase, just as the frog, which lives in moist places, is believed to augment the water supply.[a]

It is interesting to add, in discussing the probable use of these stone balls, that Doctor Stahl, who has given much attention to the botany of Porto Rico, after stating that a portion of the description of *batey* given by Oviedo was derived from the game played by the South American Indians, declares that there is no natural vegetable product in Porto Rico which furnishes an elastic gum[b] that could have served the aborigines for the balls used in the game. Whether the prehistoric Porto Ricans did or did not play the ball game described by Oviedo is beyond the scope of this writing, but the stone balls found in the dance plazas certainly could not have been used in the manner Oviedo describes.

The foregoing explanation does not fully account for the name *juegos de bola*, which survives from early times and evidently originated among the Spaniards, who, with knowledge of the use of these inclosures, applied it to them. The prehistoric Porto Ricans may have performed, in these inclosures, games or ceremonies with stone balls. Such games were known to Oviedo, but in his description he does not carefully distinguish them from those in which elastic balls were used. Similar games, to which have been ascribed a phallic significance, are recorded from Yucatan and elsewhere. In the absence of documentary proof of the existence of a prehistoric game with stone balls in Porto Rico, we have little basis for speculation regarding their phallic significance, but that this game, when it existed, had a symbolic germinative meaning among the tribes which practised it is not improbable.

Shell Heaps

The existence of shell heaps along the coast of Porto Rico has been mentioned by several authors, and excavations have been made in some

[a] Many instances might be cited in which, among primitive men, water-worn stones and sucks or water animals are believed to be efficacious in bringing water. To these may be added shells of water animals, water plants, and, in fact, anything from the water or pertaining to it.

[b] Stahl regards it as probable that this *goma elástica* was obtained from a tree, *Siphonia elastica*, peculiar to the mainland ("costa firme").

of these heaps situated near Salinas, on the south shore. Doctor Stahl has called attention to exterior shell deposits on the north coast near the mouth of the Manati river and elsewhere. The largest shell heaps examined by the author are those at Cayito, near Salinas, and on the left bank of the Coamo river, near Señor Vincente Usera's farmhouse, a short distance from the Coamo baths.

Of the Cayito shell heap an account has been given by Señor Agustin Navarette.[a] He visited Cayito with a well-known journalist and archeologist, Señor Zeno Gandia, who has also published in local newspapers several articles on Porto Rican archeology, but these the author has not been able to obtain. The shell heap at Cayito is thus described by Navarette:

A quince ó veinte metros de la costa y en línea recta de este lugar, encontramos un vasto solar, verdadero "*kiquem dingo*" danés, circunscrito de un lado por la costa y el otro por el rio; en él y casi á superficie recogimos más de 50 fragmentos de cerámica indo-borincana, entre ellos varias cabezas de idolillos y penates, habiendo uno muy curioso porque sobre la frente y en el centro del tocado, tiene un verdadero cascabel de barro que suena cuando se le agita. Estos fragmentos de objetos de usos doméstico y religioso, tienen muy diversos dibujos: entre los que me he traido hay uno que figura la cabeza de un murciélago, mide una pulgada de tamaño y parece estuvo adherido á alguna vasija ó cántara. Es de notarse que en todos los lugares á que aludimos, se camina sobre una enorme cantidad de restos de moluscos, los que se hallan en la superficie ó revueltos en la tierra á poco que con el pie se ahonde.

According to Navarette, Doctor Souquet excavated the larger part of this shell heap eighteen or twenty years previous to the former's visit and obtained 600 *caricetas*, or little clay heads, which he had carried to Europe. These clay heads are not, as is popularly supposed, heads of idols, but are fragments of ceramic decorations, as will be shown later.

In the neighborhood of Cayito, Navarette found a human cranium and vertebræ and larger arm bones, which he decided, from evidence obtained from natives, were not those of historic occupants of the country. Their association with fragments of prehistoric pottery led him to regard these as remains of prehistoric people who once lived in that neighborhood.

On his visit to Cayito in 1904 the author was able to identify the shell heaps mentioned by Señor Navarette, but he found their form greatly modified. The sea had apparently washed away portions of the mound at one point, and elsewhere houses had been erected upon it, partially concealing its site. Guided by Señor Santiago, he picked up several fragments of pottery near one of the cabins and obtained a few clay heads from the natives. No excavations were attempted but enough evidence was obtained to show that extended work in this neighborhood would reveal important archeological data.

[a] Agustin Navarette, Estudios de Arqueologia de Puerto Rico, published in the newspaper *El Noticio*, May, 1896; republished in *La Aquila*, Ponce, 1904.

The largest shell heaps visited by the author were those near Coamo springs, on the farm of Señor Vincente Usera, who first called the attention of the author to these remains. The heaps are very extensive, covering considerable portions of the bluff near his house on the left bank of the Coamo river. At this place there is an embankment 20 or more feet above the river in which are layers of shells with fragments of pottery. On the surface shells occur for a hundred feet or more from the edge of the embankment. These shell heaps would well repay systematic excavation. The numerous fragments collected were practically identical in character with those from Cayito and resemble those from shell heaps in Jamaica.[a]

Caves

Porto Rico has many caves, some of which are of great size and beauty. Many of these caves have not been explored to their full extent and but a few have been entered by archeologists. The only systematic attempts to discover aboriginal objects concealed in their floors are those of M. Pinart in the neighborhood of Arecibo and of the author in caves near Manati.

It is impossible to enumerate all the caves on this island, for they occur along the whole north coast and in the mountains wherever the soft limestone comes to the surface. Some are inaccessible; many are entered from a level, others from the top. The majority bear evidence of great age; others are more modern. Many caves are simple shelters with overhanging cliffs, the entrance being open to the sky; others have very narrow passageways opening into large chambers which communicate by means of passages with smaller rooms extending deep into the bowels of the earth.

There are caves showing evidences of human occupation, near Aguas Buenas, Bayamon, Ciales, Manati, Arecibo, Corosal, Caguas, Adjuntas, Utuado, Coyuco, Juana Diaz, and in many other localities. These particular ones are mentioned, not as exhausting the possible list, but as those visited by the author or those from which Indian objects are known to have been obtained. As a rule, these caves have many stalactites and stalagmites, which have obscured such evidences of occupation as mural pictographs. Niches that are evidently artificial, platforms, and other artificial structures occur quite frequently. All the caves visited by the author had been previously entered by others, and whatever movable objects, such as idols or pottery, formerly stood in these niches or on these platforms had long before been removed.

The floors of the Porto Rican caves offer the most promising places for archeological examination, and for that purpose the author chose the cave called the "Cueva de las Golondrinas," situated not far from

[a] Edith Blake, the Norbrook Kitchen Midden. *Victoria Quarterly*, II, Kingston, Jamaica, 1890.

Manati, on the north coast of the island. This is one of several large caverns in that neighborhood, all of which show many signs of former Indian presence. It is large and opens laterally, with the entrance looking over the sea across a narrow strip of beach, a sheltered cove and landing place which may have served Carib or others as a safe harbor for their canoes or an easy incline should they desire to haul them up on the shore. The strip of land between the cave entrance and the shore is fertile, yielding the present owner a remunerative yearly crop. The face of the cliff, in the side of which this and neighboring caves are eroded, is perpendicular, and can not be scaled near the cavern entrance.

This cave is about 50 feet deep, the overhanging cliff being about 30 feet above the floor; its width at the entrance is about 100 feet. It is evident that since this cave had been used by man what was once the edge of the overhanging roof had broken off in sections and fallen to the floor, partially closing the entrance to the cave. Trees of considerable size grow just before the entrance, partially concealing it from the level strip of land a few feet below. This breaking of the edge is due in part to erosion, but largely to roots of trees on the cliff above. These agencies have detached stones of considerable size; but it is clear that the stones have fallen since the cave was used, for fragments of Indian pottery were found in the soil at the mouth of the cave. Much of the surface of the cavern is covered with a layer of stalagma, and stalactites are still being formed by a continual dripping of water from the wall of the overhanging cliffs.

The floor of the cave is composed of a soft soil, easily excavated, showing evidences of human occupation to the depth of 10 feet. Before the arrival of the author other investigators had made excavations in the floor, but so far as he could learn these diggings were made, not for scientific purposes but for supposed concealed treasures. Several of the peons employed by these gold seekers worked for the author also, and according to their stories no treasure of any kind was found. The workmen declared, however, that ominous voices proceeding from the cliffs and threatening intruders with death should they disturb further the cave floor led them to abandon their former work. Of course they heard no such voices in their work for the author, when they received their wages at the close of each day.

The floor of this cave was excavated by making a trench across the entrance just within the fallen stones above referred to, working into the cave and outward from it toward the sea. The soil was found to be full of fragments of pottery, charred wood and ashes, shells, and worked bone objects. No European objects or other evidences of Spanish contact were found. The excavations were carried down to the hard stalagma that forms the foundation on which rests the soil containing artificial remains. At one or two points the stalagma was

penetrated and found to be solid, without traces of artificial remains. The loose soil contained bones of many animals which had served as food, but no human remains and no evidences of cannibalistic feasts. No shell breccia was detected.

The pottery consisted of broken fragments—no whole jars were obtained—mainly handles of large ollas, or cooking pots. They belong to ware of the coarsest kind, and many still show soot on their surfaces. There were a few specimens of polished red ware, but none were painted or had evidences of glazing or vitrified surfaces. In one or two instances ridges indicating the coiled method of manufacture were detected, but as a rule these coils had been rubbed down, making a smooth surface. The curvature of the large fragments indicates various forms of ceramic objects. There are evidences that some of them were vases and bowls of almost globular shape; others were boat-shaped or more like trenchers, and still others were flat dishes or plates. Some of the last-mentioned kind had raised ribs across their bases. Small clay heads, more than 25 of which were removed from the soil of this cave, are fragments of relief decoration of pottery. Their general forms, as seen in some of the plates illustrating this work, do not greatly differ from those found in the burial mounds, a fact which would indicate identity of culture in their makers.

The few celts which were exhumed from the floor of this cave are petaloid in form, but one specimen is beautifully polished and grooved, resembling the axes characteristic of the Carib of St Vincent or of Dominica.

The evidence, so far as it goes, seems to indicate that this cave was a camping place or a spot frequented by many natives for a considerable time, but there is nothing definite to identify the inhabitants as Carib; the results of the foregoing investigation suggest that they were people of the same general culture as those who lived in the mountains. The pictographs on the walls of the cave, of which there are many, are not materially different from those found in the open, as will be shown later in this article.

Examinations of one or two smaller caves near the Cueva de las Golondrinas showed nothing exceptional. Farther down the coast, near the mouth of the Manati river, there is another large cave, with many fragments of pottery, which would be a good place for new explorations.

ARCHEOLOGICAL OBJECTS

By far the most important means now available for the interpretation of the culture of the prehistoric Porto Ricans is a study of archeological objects that are being brought to light by chance discovery or scientific exploration. When the extent to which prehistoric objects may aid us in an interpretation of aboriginal life is more generally

recognized, additional efforts will be made to preserve such specimens for the archeologist. Porto Rico has been particularly fortunate in this regard. It has had many local students who have been interested in the aboriginal history of the island and many more who have preserved relics, awaiting the time when scientific men would use them in their studies.

One finds few writings on this subject prior to the middle of the nineteenth century and can count almost on his fingers the published works on Porto Rican archeology up to the present time, although several collections of prehistoric objects made by local collectors have drifted into museums or private hands in the United States and Europe or still remain on the island.

The Latimer collection, which is the largest ever made on the island, and has attracted the most attention, was presented to the Smithsonian Institution by George Latimer. It was described in 1876 by Professor O. T. Mason, the nestor of American ethnology. This publication, the most complete account of Porto Rican antiquities which has appeared, stimulated an ever-increasing interest in the subject that was heightened by the annexation of the island to the United States. In 1898, more than a quarter of a century after Mason's catalogue of the Latimer collection first appeared in print, owing to the increased demand for information regarding the antiquities of the island, the Smithsonian Institution reprinted it as being still the best work extant on the subject.

The author considers himself fortunate in being able to include in this article descriptions of the objects in the Latimer collection, and he has drawn largely from Professor Mason's work in many quotations scattered through the following pages.

In considering the material from Porto Rico, when necessary comparative data from other islands, as Santo Domingo and the Lesser Antilles, have been introduced. Porto Rico was the center of an Antillean culture but the same or an allied culture was found in neighboring islands, so that it is not well at present to limit this report to Porto Rico, notwithstanding the relatively great size of collections from that island.

It is unfortunate in some ways that the exact localities where the objects were found can not be stated definitely, and it is equally to be regretted that we do not know accurately whether one or two of the specimens were collected in Santo Domingo or Porto Rico. There were two, perhaps three, different races—the Carib, the Arawak, and possibly an archaic population of cave dwellers—in Porto Rico before the advent of Columbus. It may be possible later to distinguish the objects which belonged to each of these different peoples, but at present it is not.

The archeological objects treated in the following descriptions include stone implements, three-pointed idols, stone collars, stone heads and masks, amulets, pillar stones, ornaments of stone and shell and bone carvings, pottery, wooden objects, idols of stone and wood, and various other specimens. In the same general category are likewise included pictographs, or rock etchings, and other archeological evidences of aboriginal life which still remain on the island.

The forms, no less than the fine technology exhibited in the above-mentioned groups of prehistoric objects, stamp the culture to which they owe their origin as high in the scale of development. Such fine products could not have been the work of an unskilled people. These objects are characteristic, differing essentially from those found on the neighboring continent, so that we may designate the area in which they occur as a special culture area, distinct from all others and deserving of the specific name by which it has been designated.

This culture reached its highest development in the two islands of Porto Rico and Santo Domingo, so that the causes which led to its evolution must be sought in the insular conditions under which it was evolved. The specimens show little to indicate their age, but the development of a peculiar culture like the Antillean is not the product of a few years, but rather of long periods of time, which implies that man has inhabited the West Indies from remote antiquity, long enough to lead to great specialization in the artificial products that have survived him. But it is also highly probable that the ages of these objects may be different, for while many were doubtless in use when the islands were discovered, others, as the stone collars, had already passed out of use at that time.

Many so-called prehistoric implements were doubtless brought to Porto Rico by Indians who were transferred from neighboring islands as slaves or by those who voluntarily sought homes there from over the seas. In the light of this knowledge it becomes a complicated problem to refer these objects to their rightful makers, and we have not in our possession the data adequate to solve it in a wholly satisfactory manner.

It is remarkable, as was pointed out by Professor Mason regarding the Latimer collection, that "there is not in all the collection a single flaked or chipped implement or weapon." The same is true of the many hundreds of stone implements obtained by the author, and thus far there has not been discovered in Porto Rico evidence of chipped stone, not even a single arrowhead. The roughest stone objects found show marks of polishing. Mr Frederick A. Ober states that Doctor Llenas, a physician of Puerto Plata, "describes an aboriginal workshop he investigated in a cave in the Santo Domingo mountains, where he found many fragments of chipped tools, but no perfect specimens."

This was an important discovery and should be followed up by later students of Antillean methods of stoneworking. It should be borne in mind in this connection that many objects are made of a kind of stone resembling jadeite, which thus far has not been found in situ in either Haiti or Porto Rico. The nearest locality where the rough material out of which some of the prehistoric objects were fashioned occurs is in South America, many miles away, and these at least were not manufactured on the islands where they were found.

Every collection of aboriginal objects from the West Indies which the author has examined is rich in stone implements, differing in character, size, and form. The surfaces are either rough or highly polished, and, as a rule, the specimens are made of a hard volcanic rock, similar to that used in the manufacture of idols and amulets.

Various forms of these implements are well described and figured in Professor Mason's articles on the Latimer and Guesde collections, in Doctor Stahl's Los Indios Borinqueños, and in the various publications of Mr im Thurn. Mr Richard Quirk[a] figures and describes a series of these objects which includes the more striking forms peculiar to the Lesser Antilles. But while the majority of these stone implements are of Carib origin, the likeness of many to the implements used by the ancient Porto Ricans is so close that there can be no mistake in considering them typical of both races. In a general way these stone objects may be classified under the following heads: 1. Celts; 2. Axes; 3. Paddle-shaped stones; 4. Smoothing stones; 5. Curved stones.

Celts

The stone celts from the Antilles may be roughly classified as follows: 1. Celts of almond or petal shape, with no indication of groove or distinct enlargement for hafting; 2. Axes or stone implements with single cutting edge and notches on opposite rim, generally flat or slightly curved; 3. Celts with head enlarged, the diameter being greater than the thickness of the blade, the ends being notched or continued into ears; 4. Celts with grooves for hafting, single cutting edge, butt or head blunt, sometimes continued into projections. These types, which vary in essential points, are connected by many aberrant forms. This classification is essentially that suggested by Professor Mason in his account of the Guesde collection. The celts of prehistoric Porto Rico generally belong to the first type, those from the Lesser Antilles to the others.

The petaloid celts are beautifully shaped and generally highly polished. They are oval in section and circular or ovate in outline. In

[a] Carib Stone Implements in the Horniman Museum. *Reliquary and Illustrated Archeologist*, VIII, no. 3, 169–181. He gives many figures of Carib stone and shell implements. For additional matter on this subject see Dr H. F. C. ten Kate's article on West Indian Stone Implements and Other Indian Relics, in *Bijdragen tot de Taal Land en Volkenkunde van Nederlandsche Indie*, IV.

rare instances they are found decorated with carvings of grotesque faces in relief.

The weapons of the Porto Ricans were wooden clubs, called *macanas*, or swords pointed at one end, with a cross stick like a sword hilt. They had also javelins of hard wood, which they threw with great force, and bows and arrows. Although they are said to have used bows and arrows derived from the Carib, no stone arrow points have yet been found, and it is probable that these arrows had tips made of bone or shark's teeth, or of spines of the ray or other fishes. The historian Iñigo states that they were skilful in shooting, but that they did not poison the points of their spears or arrows, as the Indians of the Orinoco valley did; the ends of the arrows of the Porto Ricans were hardened by fire.

Specimens with blades and handles of stone show the ordinary method of hafting the prehistoric stone celts used by the aboriginal West Indians, but all petaloid celts are destitute of grooves, except one specimen in a small private collection, in which a groove is well marked. While the majority of the celts are pointed at one end and rounded on their edges, their longest axis being at right angles to their handles, many are more massive, and blunt at both ends. There are specimens in which the longest axis is in line with the handle.

Characteristic stone implements, called from their shape paddle-stones, occur in many collections and appear to have been found in all the West Indies. These have a circular, triangular, or even a more or less rectangular form, terminating in some specimens in a bifurcated tip. It would seem that some of these may have been used as a means of carrying live coals for various purposes, such as hollowing out logs in the first stages of canoe making. The forms of these objects grade so imperceptibly into those of celts provided with handles that in some instances it is very difficult to distinguish the two types.

A group of artificially worked stone objects of unknown use are called polishing stones. These have a variety of shapes and vary considerably in size, some being quite large, others minute. Many of these objects were sharpened at one end or at both ends.

The use of curved stones is likewise problematical. Many of these are massive and in some specimens the curved extensions are bifurcated at their extremities. Examples of this type are figured in several published articles on West Indian stone implements and good specimens of the type are represented in Professor Mason's publications.

A number of paddle-shaped stone implements, some being of considerable size, have a circular or a roughly triangular shape. Their handles are sometimes curved, rarely bifurcated at the pointed end. Stones of this shape are often of green color, of a rock unknown on the island, and may be those implements of which Charlevoix speaks as having been brought from the Amazon valley. In this group may

be classed certain boot-shaped or crescentic stones of unknown use, which are found in several collections. Others belonging to this group are called, for want of a better name, smoothing stones.

Celts made of conch shells are very common in Barbados, the Bahama islands, and in some of the Lesser Antilles, but very few of these objects have been found in the larger West Indian islands. Where this kind of celt occurs there is no hard rock available, and these implements afford a most instructive example of the effect of geological environment on primitive art. I know of only one Porto Rican shell celt—that preserved in the collection of Mr Yunghannis. Like the Barbados specimens, it is made from the lip of a conch shell, showing well-marked signs of chipping along its cutting edge.

The specimens figured in plate XI illustrate the general forms of small stone celts collected in Porto Rico. As will be noticed, they assume many shapes—from that of a chisel to the broad-edged battle-ax. The end opposite the cutting edge is generally pointed, justifying the name petaloid, but this end is often blunt, rounded, or even flat. The one feature that they all share—that which distinguishes the true Porto Rican from the Carib stone ax of St Vincent and other islands of the Lesser Antilles—is the absence of a groove for the attachment of a handle. This is not peculiar to any one West Indian island, for petaloid celts occur in all islands, from Trinidad to Cuba, inclusive.

It often happens that the Porto Rican stone implement is elongated into a chisel-like instrument, many specimens of which are represented in plate XI. Several of these might more properly be designated celts, representing an intermediate form between a stone chisel and a petal-shaped weapon. These stone chisels are sometimes highly polished and are generally made of very hard stone. Plate XI shows also representations of other forms of stone implements from Porto Rico, some being chisel-shaped, others almost triangular in profile, and still others oblong. The implements of the oblong type, being destitute of sharpened edges, could not properly be called either chisels or celts, as their real use is not known. The stone celts are called by the country people to-day *piedra del rayo*, "thunder stones," and the almost universal belief in the West Indies is that they are thunderbolts, caused by lightning. There are figured in plate XII five of the most nearly symmetrical and most highly polished petaloid celts obtained in Porto Rico.

The two upper celts shown in this plate, from a cave at Cayuco, near Utuado, were found, one on each side of a globular vase containing several hundred stone beads, and may be regarded as sacrificial offerings. A good specimen of a celt of soft stone is shown in the center of the lower series, to the right of which is a celt of the hard green stone resembling jadeite or serpentine, that probably came from South

America. In the author's collection of celts, numbering more than 600 specimens, it is rare to find one which is not nicked or broken at the point or edge. This is due to the fact that the peons, from whom the majority of these specimens were purchased, could not resist an impulse to strike them against some other stone to see what would happen.

While the majority of the petaloid celts shown in plate XIII have the same form, one of these is exceptional in having a depression worn on two opposite edges, as if it were the beginning of a groove for hafting. This indentation is unique among prehistoric petaloid celts from Porto Rico, but it occurs on ax-formed specimens from Santo Domingo and St Vincent in the Lesser Antilles (figures 3 and 4).

The celts shown on plate XIII have a petaloid form, but very rough surfaces caused by erosion. Their form is not as common as that of the more elongated, polished variety, and is less petaloid than that of the preceding ones. Their shape is the characteristic Dominican type.

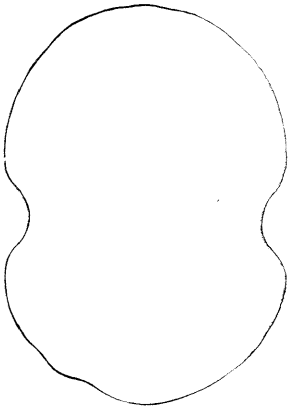

FIG. 3. Stone ax from St Vincent.

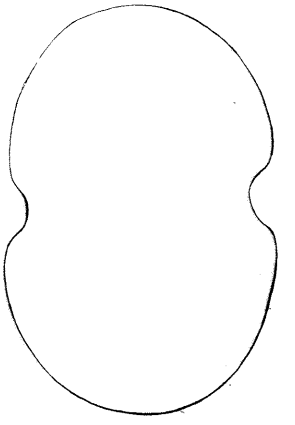

FIG. 4. Stone ax from St Vincent.

In plate XIII are represented four rough axes from Santo Domingo, one of which (*g*) is petaloid in form. Here is shown also an unusual specimen (*e*), which has a notch at one side of the point. A similar but somewhat exaggerated form occurs in several specimens that will be considered later. The next specimen illustrated in this plate (*f*) has lost all semblance of the petaloid celt. It is circular in profile, with notches on the opposite edges, and a rough, unpolished surface. It apparently once had two cutting edges, and still shows notches indicating the former place of attachment for the handle. The last specimen (*h*) has an obscure petaloid form, but is exceptional in having a ridge at the hafting point. This form is rarely duplicated in collections from Porto Rico.

The three hatchets figured in plate XIV are forms seldom found in existing collections. Their essential characteristic is that shaft and blade are made of one stone. There is in the Smithsonian Museum a

cast of a fine specimen of this form from an original in the Trocadero Museum of Paris, having a head carved on the end of the handle. Professor Mason has figured another one loaned to him for the purpose by Mr George J. Gibbs, of which he writes as follows:

> The use to which these polished celts was put, or more correctly speaking, the manner of hafting them, is graphically illustrated in the accompanying sketch of a celt inserted in a mortise in a handle of hard red wood and found in a cave in Caicos, or Turk's, island, by Mr George J. Gibbs, and kindly lent by him to be cast and engraved. A still more interesting and precious relic, from the same locality and found by the same gentleman, is that given in figure 11, which represents a celt and handle carved out of a single piece of jadeite. . . . A beautiful ax, similarly carved from a single piece, is figured and described in Jones's Aboriginal Remains of Tennessee (*Smithsonian Contributions*, no. 259).

Plate XIV, *c*, shows the hafting better than it is figured in *a* and *b*, both of which, however, must be regarded as finished implements. These three specimens are the only ones of their type from the West Indies in the Smithsonian collection. One of the most remarkable specimens, plate XV, *a*, purchased from Archbishop Meriño, of Santo Domingo, is a petaloid celt made of green stone, on one side of which is cut in low relief a human face, and arms folded to the breast. There can hardly be a doubt that this celt was never hafted, as no signs of its attachment to a handle are to be seen, and as the presence of a handle would conceal part of the figure cut upon it. It is called a ceremonial celt and was probably carried in the hand. The reverse side is perfectly plain, very smooth, and with the exception of a small nick, the cutting edge of the specimen is perfect. The stone from which it is made is not found in the Antilles, a fact seeming to indicate South American origin. The specimen pictured in plate XV (*b*), at present in the museum of Santiago de Cuba, may also be regarded as a ceremonial celt, but the head is cut on one end instead of on the side of the celt as in the former specimen. It is rough, unpolished, and made of soft stone. The arms of the figure cut on it are represented folded on the breast, as in the Santo Domingo specimen.

The use of the stone implement from Porto Rico shown in plate XVI (*a*) is enigmatical, but it may have been a pounding implement, the curved portion serving as a handle. It has a globular form, with a narrow, sickle-shaped[a] extension that was formerly pointed at one end. A grinding stone with a slightly curved handle is shown in the last-named plate (*c*). Specimen *b*, likewise supposed to be a grinding instrument, recalls other specimens in the collection in which the handle is relatively longer and its bifurcation more pronounced.

The object figured as *d* (plate XVI) is thus described by Professor Mason: "A boot-shaped specimen, the top bent forward and pointed, and the toe coiled upward. It is somewhat smooth on the sole." This

[a] Carl Christian Rafn, in Cabinet d'Antiquités Américaines à Copenhague (Copenhagen, 1858), figures a stone collar, a mammiform idol, and two curved stone objects.

object was probably used in much the same way as the others figured in plate XVI, the difference being in form rather than in use. It is a fine specimen of aboriginal stoneworking, the curved tip especially showing difficult technic.

Plates XVII to XXI represent a series of Carib implements from St Vincent, some of which were presented by Mr Jacobson, of Trinidad, and others by the author in the same island. Nearly all these specimens have practically the same general form and are characterized by indentations for hafting. These objects are duplicated in the Guesde collection and specimens are figured by Professor Mason. The reason for introducing them here is that the majority of the Carib celts figured by Mason were made from drawings and are not represented by specimens in the Smithsonian collection. Moreover, by comparison of the forms, the striking differences between the celts of Porto Rico and those of the Lesser Antilles can best be shown.[a] There is not a single Carib celt in the collections from Porto Rico, although the island, especially along the shore, was frequently raided by the Carib, who obtained a foothold in the eastern end. The methods of hafting stone implements are not distinctive enough to indicate different cultures, but these implements show important technological differences characteristic of two races.

One of the finest specimens of Carib implements (plate XXI, *e*) was purchased by the author in Barbados from a man who obtained it in Grenada. This almost perfect specimen has a broad groove for attachment to a handle, notches on the sides and ears on one end. It is finely polished and made of a hard basaltic rock. Although the Guesde collection has no specimens of exactly the same form, the outlines of several are much more complicated and they may be regarded as better implements from the technological point of view. Several specimens of petaloid celts from eastern Cuba are shown in plate XXII.

Enigmatical Stones

The several stone objects figured in plate XXIII are enigmatical so far as their uses are concerned. Plate XXIII, *a*, is an ovoid stone, flat on one side and slightly convex on the other—that turned to the observer. The flat side has in the middle a round shallow pit, but the convex side of the stone is incised with grooves, arranged in lines and concentric triangles. A groove, not visible in the accompanying figure, also extends around the margin of the stone. One is tempted to regard this object as a part of a grinding apparatus, similar to the lower stone of the mill still used by the natives.

[a] E. F. im Thurn, Notes on West Indian Stone Implements, I, 257; II, 253; III, 103. See also his article, On the Races of the West Indies, in *Journal of the Anthropological Institute*, p. 190–196, London, 1886.

Plate XXIII, *b*, an unknown implement of semicircular form, has extensions or projections, two on the middle line and one at each point of the crescentic margin. In *c* is figured a melon-shaped stone, crossed by meridional grooves which do not clearly appear in the illustration. Its use is unknown, and, so far as the collections here considered are concerned, its form is unique.

The specimen represented by *d* is a flat circular stone, plain on one side and decorated with meandering grooves on the other. This object has an extension on the rim, through which there is a hole, with a beveled periphery, by which it may have been suspended to be used as a gong.

The stones figured in plate XXIII are of different types, but two specimens are so nearly alike that we may suppose that they had a like use. A flat disk with a round tapering stone handle, from Santo Domingo, collected by Mr Gabb, is represented by *e*. Both handle and disk are decorated with minute pits or indentations. The spatulate stone, *f*, is destitute of superficial decorations but has approximately the same form as that just mentioned. This specimen was presented to the Smithsonian Institution by Mr Latimer and is described and figured by Professor Mason as a "paddle-shaped celt." The term celt implies its use for purposes quite different from those for which specimen *a* is adapted, but its purpose is not definitely known. The object illustrated by *g* was evidently used for rubbing, but that shown in figure *h* on the same plate is enigmatical.

Plate XXIII, *i*, represents a singular cylindrical stone, flat on one side and rounded on that turned to the observer. An enlargement at one end suggests a head and the tapering tail gives a serpentine appearance to the whole object. This specimen may be regarded provisionally as a serpent fetish, although the resemblance to a serpent is but superficial.

The specimen designated *j* is an artificially formed stone of unknown meaning, resembling a large unperforated bead. This may have been used by the aborigines as a rolling pin to crush paint or herbs, or, as both ends are somewhat worn, as a pestle for bruising hard grains or nuts.

It is to be regretted that the curved stone (plate XXIII, *k*) from St Vincent is broken, for it belongs to a type new to students of Carib antiquities.

The specimen figured in plate XXIII, *l*, is one of the enigmas with which the student of the aborigines of the island has to deal. When seen from one side it has a triangular profile, its base being surrounded by a shallow groove. The breadth is somewhat less than the thickness and the surfaces are rounded. This stone, so far as form is concerned, might be confounded with the fourth type of three-

pointed stones, except that it has the basal groove and no indication of the anter or inclination of one of the points. The specimen here figured was obtained on the British West Indian island of Grenada, but there are other and far better specimens of this type in local collections on St Kitts. The general form and the presence of a groove suggest that this specimen is one of those pendants which are represented in the ear lobes of certain idols and fetishes from Porto Rico and Santo Domingo. There is little doubt that the wooden idols later figured and described in this paper formerly had pendants in the ear lobes, but these ornaments were probably made of gold or precious stones. It is possible that people of the lower classes may have worn in their ears ruder pendants, perhaps of stone of which the object figured may be an example.

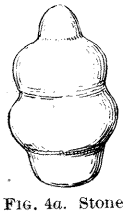

FIG. 4*a*. Stone object from St Vincent.

The use of the object shown in figure 4*a* is unknown.

Two broken mullers, or grinding stones, much worn and looking very much like the broken axles of a wagon, are known to the author. One of these occurs in the Latimer collection; the other was obtained by Mr Read for the author near Ponce, Porto Rico. Since these specimens show wear on one side, as if from the friction of another body, it has been suggested that the aborigines were acquainted with the principle of the wheel and that these were axles partially worn away by the rotation of the wheel. The same person who originated this theory to account for these stones suggested also that the massive collars were wheels, the interior having been filled with wood in which was inserted the hub. This theory has little to commend it, and the best that can be said is that it is as reasonable as some others that have been brought forward to explain the use of those archeological enigmas, the stone rings or collars. The so-called axles are stone mullers used with metates in grinding maize, as figured by Benzoni. A single specimen was seen in Puerto Plata, Santo Domingo.

PESTLES

The collections from Santo Domingo contain many pestles with ornamental handles, but there are only a few similarly decorated pestles from Porto Rico. The ornamentations take the form of heads of animals or of human beings on the ends of the handles. In some instances the entire body is represented, in others only the heads, and in a few the whole handle itself is carved to represent an animal or a human being. We can distinguish in each of these pestles four distinct parts, (1) head, (2) handle, (3) lens or base, and (4) ferrule, the last being situated at the junction of lens and handle.

A considerable amount of speculation has been indulged in by various writers to explain the significance of the carvings on these objects.

Mr Walton finds in them representations of the lingam and yoni of phallicism, and Señor Poey enters into an elaborate discussion of this theory. It seems unnecessary to consider these objects anything more than decorated pestles or paint grinders, although the more highly carved specimens may have had a place in household worship. Their decorations undoubtedly represent certain mythic human or animal personages, but we can hardly believe that the objects served as idols. The archbishop's collection from Santo Domingo contains many very fine specimens of these objects.

The elaborately decorated pestle shown in figure 5 was found in a cave at Cotui, Santo Domingo, by Señor Teofilo Corderu, and was exhibited in the Historical Exposition of 1892, in Madrid, where it was regarded as one of the finest known specimens of Antillean stoneworking. This specimen is made of black rock and is about 10 inches high. On the upper extremity of the handle there is a figure elaborately carved, with human face, body, and limbs, suggesting an idol.

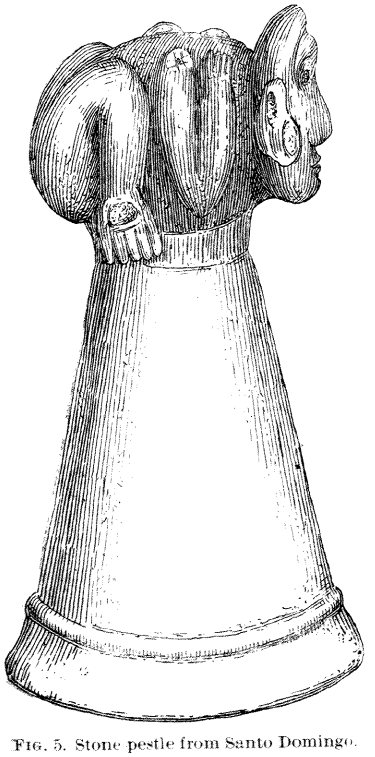

FIG. 5. Stone pestle from Santo Domingo.

Plate XXIV (*a*, *b*) represents one of the best pestles of the archbishop's collection from Santo Domingo. It differs from all others in having at the end of the handle a complete figure of a human being lying on its back, with the face uppermost and the legs retracted. This figure has well-cut eyes, nose, and ears, and, when seen from the top of the handle, it will be noted that the arms also are represented, the hands resting upon the knees. The handle of the pestle is short, the lens angular and smooth.

The same plate (XXIV, *c*, *d*) shows a more slender pestle, having a double ferrule at the points of attachment of lens and handle, but the groove which imparts the double form to this ferrule is not continuous, being broken at one place, where there is an incised line at right angles to the groove of the ferrule. The handle is slightly swollen midway in its length. The head and body of the figure on the handle are well carved, the former being placed vertically on one side, the body extending over the top and the legs hanging down on the side diametrically opposite the face. It will thus be seen that the figure lies on the ventral

region over the tip of the handle, its head and legs being on opposite sides. A face view shows two sunken eye sockets, a prominent nose, an elongated mouth with thin lips, and prominent ear pendants, one of which is broken. This specimen, somewhat battered but in a fair state of preservation, is made of a highly polished soft stone.

The accompanying drawing (figure 6) of a specimen from the collection of Señor Rodriguez, of Santo Domingo city, gives a good idea of a type of pestle-like idol with two faces cut on the end of the handle and a spherical base.

An unusual form of stone pestle, shown in the accompanying cut (figure 7), is from the same collection and was found probably in either Haiti or Santo Domingo.

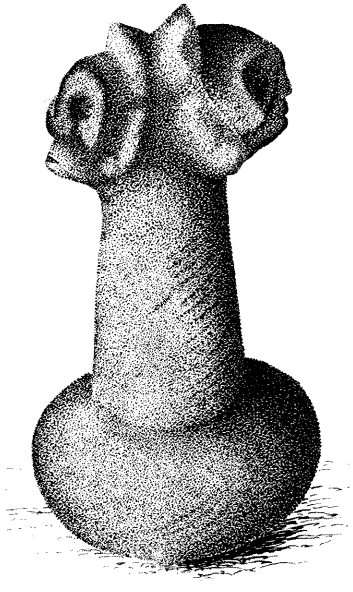

FIG. 6. Double-headed pestle from Santo Domingo.

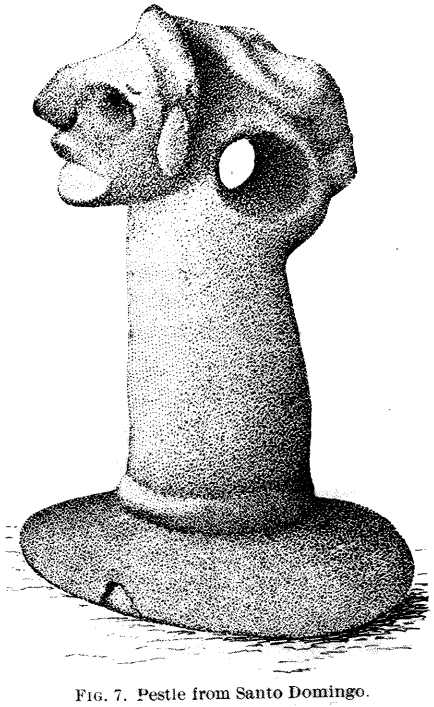

FIG. 7. Pestle from Santo Domingo.

The remaining specimens in plate XXIV, *e–j*, are also from Santo Domingo and were purchased with the archbishop's collection. There is shown in *e* a well-cut human face on one side and representations of body, retracted legs, and arms cut in low relief on the other. There is no ferrule at the junction of the handle and the lens, which in cross section is angular.

The specimen designated *f* also has a human figure with a well-cut head, and legs in low relief at the tip of the handle, but has, unlike that just mentioned (*e*), a ferrule just above the lens, which appears rounded when seen in section.

A ruder specimen (figure 8) of somewhat the same type but smaller, exhibited in the Madrid Exposition, was said to have been obtained in Santo Domingo. Its base is flat, rounded, and girt by a bead, as in the specimen last described. The head of an animal is carved on the handle. While this object may have been used as a pestle, its form suggests an idol; but it belongs to the general type of stone pestles, already mentioned.

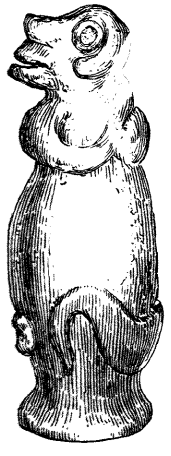

FIG. 8. Small idol from Santo Domingo.

Plate XXIV, *g*, is a long-handled pestle with rounded lens and ferrule in low relief. Its handle tapers gradually from the ferrule to the image at the end, which represents a human being with legs and with slight projections for ears and arms.

Specimen *h* is a pestle with a broken lens and a well-cut figure on the end of a short handle. The fore limbs in this specimen are raised in such a way that the hands appear to be placed behind the back just at the neck.

Specimen *i*, *j* is a pestle, the tip of the handle being decorated with an obscurely made figure. This specimen has a smooth surface which shows much pecking and may be an unfinished idol.

The accompanying cut (figure 9), representing a pestle in Mr Yunghannis's collection at Bayamon, Porto Rico, was made from one of the author's sketches. The surface of the original is rough, the base oval and smooth, the eyes and ears being represented by pits, while parallel curved grooves suggest appendages.

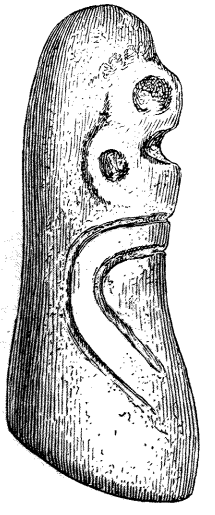

FIG. 9. Pestle from Porto Rico.

Many pestles of simple forms are shown on plate XXV, one of which (*a*) is long and club-shaped, having a head rudely carved on one end of the handle. There is no lens or enlargement at the opposite extremity, where, however, the diameter is somewhat greater than at the head. The remaining figures on this plate are the simplest forms of pestles, or possibly pigment grinders. In specimens *b* and *c* no differentiation indicative of a handle is visible, while in *d* the neck is a simple contraction below the head, the whole face being occupied by two depressions or owl-like eyes. The specimen designated *e* is a broken pestle with an animal body and *f* represents a very simple, rough paint grinder, destitute of the carved head. The remaining specimens (*g*–*i*) are simple paint grinders.

Plate XXVI, *a*, has a ferrule above the lens, with prominent ears, nose, and lips; in *b* the lens is spherical, the goggle eyes are large, the nose is round, and there is an elevation on the forehead; while *c* has a human head with nose, lips, and ears in relief, being exceptional in lacking all indication of a lens. The grinding surface of this specimen is convex, its nasal opening triangular, as in several figurines made of pottery. This specimen[a] is figured by Professor Mason, and described as follows:

> A rough, bell-shaped pestle, with a rude human face on the top. Precisely similar ones are found in Santo Domingo (see Stevens's Flint Chips,[b] p. 227, 230, and 231), but in many cases the head is replaced by the head of an animal.

The specimen figured as *d* is a conical pestle of simple form, with no indication of lens or head. The tip of the handle is pointed.

Mr Willoughby, treasurer of Porto Rico, kindly showed me while on the island in 1903 a large pestle-like specimen (figure 10) made of diorite rudely fashioned, that differs in form from other known specimens. Like other similar objects, its use, whether as pestle or idol, is problematical.

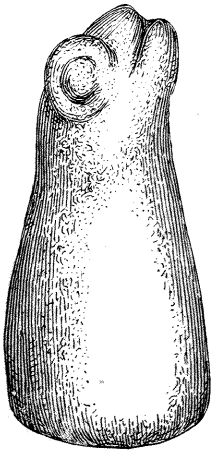

FIG. 10. Pestle from Porto Rico.

On plate XXVI, *e* has for a handle the head and body of a grotesquely carved human being, the arms being held akimbo, with deep pits between them and the sides of the body. The lens has here become globular, the ferrule appearing as a broad band. The doubtful specimen (*f*), made of soft soapstone, has a head cut on the end, the eyes being deep cavities and the ears projecting. The surface of this implement is rough and the lens has rounded edges. Specimen marked *g* is a simple pestle with globular lens and a head cut in low relief on the end of the handle.

The object figured as *h* may not have been used as a pestle, having rather the form of a small idol, with head, feet, and legs cut in relief. There is no lens or ferrule, the limbs being roughly indicated by low prominences. The base is flat, showing no appearance of wear. The probability is that this object was a fetish or household idol. It may have been used at times for bruising herbs or grinding paints.

The specimen designated *i*, from the collection purchased from Archbishop Meriño, is an interesting pestle-like object in the form of a beakless bird, the wings, head, and legs being represented. The front part of the head is flat; the eyes, large and round, are surrounded with rings.

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[a] The catalogue number is 17033 instead of 17032.

[b] Edward T. Stevens, Flint Chips, a guide to prehistoric archæology as illustrated by the collection in the Blackmore Museum, Salisbury, London, 1870.

The wings are crossed by a number of incised parallel lines. The lens is well developed but there is no indication of a ferrule. The legs are in low relief on the side just below the wings, the feet being lost in the enlargement which forms the base. The tail, short and stumpy, is crossed by lines indicating feathers. Pestles with bird-shaped handles, the rarest forms known to the author, are confined to Santo Domingo, never occurring in Porto Rico.

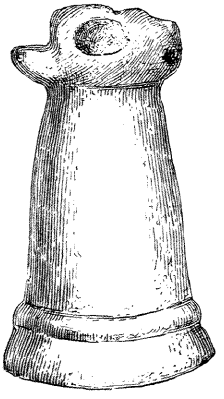

FIG. 11. Pestle from Santo Domingo.

Specimen *j*, from St Vincent, has a head at one end and a slight enlargement at the other, but no lens-shaped extremity. The eyes and mouth are obscure. Specimen *k* is a rude and apparently unfinished idol which has been used as a pestle or a grinding stone. The object figured as *l* is a simple pestle, with an enlargement at one end forming the head, in which are pits for eyes, but no representation of nose or mouth.

A remarkable stone object (figure 11) found in Santo Domingo by Señor Rodriguez belongs to the same type as the last. It is important as showing the general likeness of stone idols of this form in the two islands of Porto Rico and Santo Domingo. Another specimen (figure 12) from the latter island is somewhat similar.

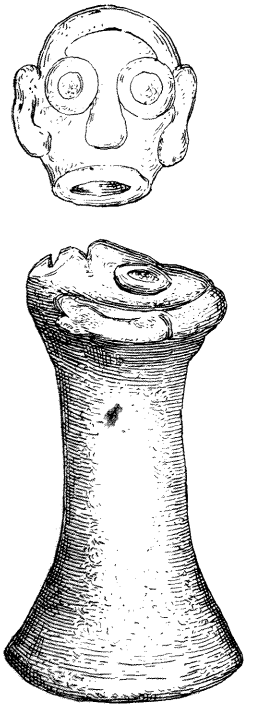

FIG. 12. Pestle from Santo Domingo.

The accompanying cut (figure 13) represents a bird image made of diorite, from collection purchased from Señor Neumann, of Ponce. The head, wings, body, and eyes are rudely represented. The surface of this object is smoothly polished, and the head, wings, and legs have the general appearance of these organs in the preceding specimens.

Similar to the last is another bird idol (figure 14) of the Rodriguez collection from the island of Santo Domingo. This specimen has not only the wings, eyes, and beak of a bird, but also raised imitations of the legs, and stands on a flaring base or lens, girt by a ferrule. The eyes are situated on the side of the head.

Plate XXVII, *a* to *l*, represents various forms of pestles in the

Imbert collection, now in Puerto Plata, Santo Domingo, copied from sketches by the author. A peculiarly formed rubbing stone of dumb-bell shape, an implement of unknown use, is here shown (*l*). Although the pestles represented in this plate are in the main of the same general outline as those already described, specimens *i* and *j* have somewhat different forms, especially *i*—a bird-shaped pestle, to judge from the head and limbs—having a bird face like that of specimen *f*. One of the objects (*n*) is elongated, with pointed head and with indications of a lens that is absent from the preceding figures on this plate. Another (*e*) has the handle swollen midway between base and tip.

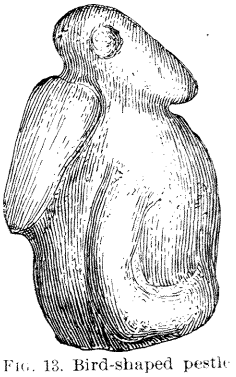

FIG. 13. Bird-shaped pestle from Santo Domingo.

The dumb-bell-shaped forms of pestles shown in this plate (*k*, *l*, *m*) recall those recorded by Doctor Duerden from Jamaica.

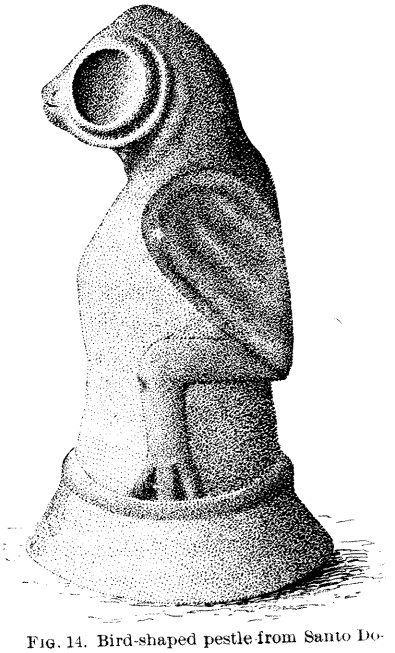

FIG. 14. Bird-shaped pestle from Santo Domingo.

Several stone implements, figured on plate XXVII, were probably used for grinders, but they are different in form from any implements yet referred to. Some of these are pestles; others depart considerably from that type.

One specimen (*o*) is an almost bell-shaped implement of elongated form, rounded below, its handle terminating in a well-made head: *p* has a rude head cut on one end, and *r* has a conical head at the apex, the base being flat. From the fact that one surface is flattened, specimen *q* is considered to be a polishing stone, an inference which its general form also would indicate. It may have been used in polishing the surface of pottery before firing or in grinding pigments or other substances. Its general character, as well as the worn surface, shows that it is an artificial, not a natural, form.

MORTARS

In his classification of mealing implements Professor Mason distinguishes between upper and nether millstones. The pestles that have already been described belong to the first group; there remains to be

considered the lower stone, that upon which the material to be ground is laid. This may have the form of a mortar or may be simply a flat slab of stone. The former type has a depression to hold the material and is used for substances which require pounding; the latter, as a rule, has no such concavity. Some mortars are ornamented by projections on their rims.

The Latimer collection contains a few mortars which have not yet been figured and three other specimens, not Porto Rican in origin, that have been called mealing stones. These last were probably introduced by Spaniards and should not be regarded as prehistoric objects. They have the same form and are made of the same material as metates, common in all parts of Latin America.

The first five mortars considered by Professor Mason are aboriginal, as are likewise those in the Guesde collection mentioned by him. These specimens show very well the variety in form of these objects, but present no essential differences from those found in Central, North, and South America. Identical metates occur in Arizona ruins and were in use among the ancient pueblos.

Although the three-legged metates mentioned by Professor Mason are regarded as imported by the Spanish colonists, it must be borne in mind that metates of this form have been reported from all the West Indian islands. Thus, Doctor Duerden speaks of similar metates from Jamaica, and figures two beautiful specimens, one of which has an animal's head on one side, the other beautifully decorated legs. Doctor Duerden calls attention to the fact that "forms similar to these two are commonly employed to-day in Central America for grinding maize and now and again are met with amongst the peasantry of Jamaica." It is well to remember, in considering the existence among the West Indians of metates so closely resembling the Mexican, that corn formed a considerable proportion of the food of the aborigines of Porto Rico. They possessed a grinding implement, consisting of a board on the surface of which sharp stones were attached, for grating the root of the manioc (*Manihot utilitissima*) in the preparation of cassava, but this was quite unlike a stone metate in shape, construction, and use. A metate would be ill adapted for grinding the root of the manioc, and on the other hand the manioc grater would be unsuitable for a corn grinder. Maize was no doubt imported into the island from Mexico or South America, and with it may have been introduced the three-legged metates. Benzoni gives an account of the method of grinding maize and making tortillas, accompanied with a good figure.

The peasantry of Porto Rico now generally use a corn mill which was introduced by the Spaniards. This mill may be seen in operation in many of the cabins in the isolated mountain regions. It consists of two circular millstones, an upper and a lower, each about a foot in diameter and both having radiating grooves on one side like the stones

of a flour mill. The lower millstone rests on the floor of the cabin, where it is temporarily placed for use. There is fastened to the middle of this stone an iron rod projecting above the surface about an inch and fitting into a hole in the upper millstone. This hole is partially closed by a wooden bar inserted into a slot of the upper stone, leaving a space on each side through which the corn to be ground is dropped, to pass in due course between the stones. On the upper side of the upper stone is an eccentric pit, into which fits a rod suspended from the roof of the cabin. When this primitive mill is set up for use, the woman who works it kneels before the mill, grasps the suspended rod, and imparts to it a rotary movement, causing the upper stone to rotate on the lower, stationary, stone, all the time feeding in the corn that later escapes between the rims of the millstones in the form of meal.

This form of mill was naturally adopted in those countries in which the metate was little used. Although corn (*Zea mayz*) is now eaten in certain parts of Porto Rico by the peon class, especially in the isolated regions about the Yunque and Cacique mountains, where mills of this kind are common, it is probable that in prehistoric times the rotary mill was unknown, while the stone metate was a favorite implement among the people.

The larger mortars here described may have been used as cooking vessels, although from the soot found on some of the pots made of burnt clay there is no doubt that pottery vessels were employed for the purpose. The smaller mortars may have been put to such uses as grinding condiments, paints, or tobacco leaves, or making sacred meal. The flat stones, with surfaces not hollowed out, would have served for a variety of purposes, among which may have been bruising plants to obtain fibers for weaving textiles of various kinds. The objects made of gold were evidently fashioned into shape by hammering. This could have been done only by means of stones, for so far as is known the aborigines of Porto Rico were not acquainted with the art of smelting gold. Suitable flat stones may have served as anvils for beating gold nuggets into the desired ornaments.

Several mortars were collected by the author in his visits to Porto Rico, especially in 1904. Plate XXVIII shows four of these objects, three of which closely resemble one another. Little can be added by description to what is shown in the figures, except that the specimens designated *a*, *b*, and *d* are hollowed out on one side, while *c* is flat on top and base, hinting that it may not have had the same use as the other three mortars. Possibly *c* was used for grinding paint, while seeds or herbs were placed in the mortars containing cavities. Pestles were employed with the latter type, but not with that represented by *c*.

Specimen *c* might more properly be called a stone bowl than a mortar, although its function may have been that of the latter. It is made with great care and shows skill in processes of stoneworking not inferior to that exhibited in the manufacture of stone rings or of three-pointed idols.

Another object, *f*, is a fragment of a stone collar broken at the ferrule, evidently put to use secondarily as a pestle, the two extremities showing marks of such use. Several specimens of broken collars or of broken three-pointed stones that have been used secondarily as pounding implements occur in all large collections from Porto Rico.

Plate XXIX, *a* and *b*, represents the upper and lower surfaces of an exceptionally fine fragment of a stone mortar of the Neumann collection. Evidently it was originally a stone trencher of crescentic form, with handles at each end. Whether this object was used as a mortar or a platter is not possible to determine, but the fact that it is of stone leads to the belief that it had the former use.

The hemispheric objects shown in this plate, *c* and *d*, are interpreted as rubbing stones. Their flat surface is smooth, as if worn so by constant use.

The specimen figured as *e* is one of the finest specimens of stone mortars in the Meriño collection. Its form is elongated and pointed at one end, where the rim rises in a low projection. The surface of the concavity closely follows that of the exterior of the vessel and is fairly smooth.

Plate XXX, *a*, illustrates a type of stone implement, several specimens of which occur in collections of prehistoric Porto Rican objects, but the function of which is unknown. The illustration shows the specimen from one of the flattened sides, the breadth being nearly double the thickness. The base is flat and smooth, and the handle of about the same diameter throughout, with the tips bifurcated, the two extensions or horns being slightly curved. Various forms of stone implements of somewhat similar character are also shown (*b*, *c*, and *d*). They are all more or less triangular in profile, rounded on the faces, and more or less flattened. One edge commonly shows evidences of rubbing, as if it had been used as a polishing implement. The specimens are made of different kinds of stone and are as a rule rough and undecorated. Specimen *a* was collected by the author, while *b*, *c*, and *d* are in the Latimer collection.

Beads and Pendants

The cacique Guacanagari gave to Columbus a string of 800 beads of stone, *ciba*, and mention of these ornaments is frequently found in early writers. There are several specimens of stone beads in the

Latimer collection, one string containing 70, which Professor Mason thus described:

> A string of 70 small chalcedony beads, about the size of peas. They are quite perfectly rounded and perforated, some of them in two directions. This is the most remarkable sample of aboriginal stone polishing and drilling that has ever come under the observation of the writer. It is exceedingly doubtful whether another collection of so many witnesses to savage patience and skill has been found anywhere in one specimen.

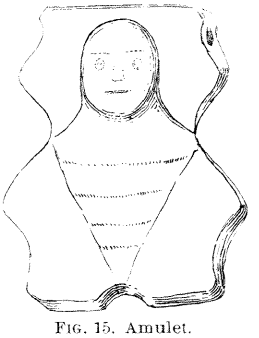

FIG. 15. Amulet.

According to Ramon Pane the woman Guabonito (good ruler) gave the hero Guagugiana much *guanine* (gold) and *cibe*, *colecibi* (stones), "that he might carry them tied to his arms: for in those countries the *colecibi* are of stone, very like marble, and they wear them about their wrists and necks: and the Guaninis wear them at their ears, making holes in them when they are little, and they sound like fine mettle."

The above-mentioned string of beads is excelled by one collected at Utuado by the author in 1904. The Utuado specimen (plate XXXI, *a*) is more than 5 feet long, containing several hundred beads, large and small, a worthy gift from a cacique. It was found in a bowl (plate LXXVII, *a*, *a'*), evidently sacrificial, and with it were another string, also a fine one, and two pendants, one of stone, the other of shell. These beads vary in size but are never round like those in the string first described above. Many have lateral perforations, as if for the insertion of feathers or other objects, and in some specimens the perforation is confined to a simple pit.

FIG. 16. Amulet (side view).

Another specimen (*c*) is one of several stone objects of cylindrical form, with a raised band midway in its length and perforations at the opposite edges. The raised band in one known specimen is decorated with what resembles a human hand. Illustration *b* represents a brown nonperforated stone of unknown use. There are two specimens of this form in the collection, one of which came with the Latimer gift. Specimen *d* is a spherical stone girt by a groove, having a perforation through an elevation that is pinched up at one pole. A string can be introduced into figure *d* to show the position of this hole.

The object shown from front and side in figures 15 and 16 may possibly be regarded as a pendant, although closely related to the frontal amulets later considered. It is made of a white stone, possibly marble, perforated laterally as if for suspension, having a human figure cut in

relief on one face. These illustrations were made from sketches given to the author by Mr W. F. Willoughby, treasurer of Porto Rico.

Stone Balls

Among the many objects found near the so-called *juegos de bola*, or ball courts, of Porto Rico may be mentioned certain spherical stones which constantly occur in collections from this island. These stone balls vary from the size of a marble to two feet in diameter. Many of them were undoubtedly naturally formed by running water, and evidently gathered from the beds of rivers and carried to the village sites for a purpose; others show good evidences of having been made spherical by human hands.

In the course of his travels in Porto Rico the author collected several stone balls, as they are popularly called, ascribed to the aborigines of the island. It is commonly supposed that these balls were used in a game called *batey*, but as they are made of stone, while Oviedo speaks of the *batey* balls as made of a kind of gum, this interpretation evidently does not apply. These balls, varying from the size of a marble to several inches in diameter, are, as a rule, moderately smooth, even when made of the hardest rock. While it is not impossible that they were used in games, some of them were intended for other and far different purposes.

That these objects were used by the Indians in ball games such as Oviedo describes can not be believed, because that author says that elastic balls of vegetable substances, capable of rebounding, were employed in the ball games; but these stones may have been used in ball games of other kinds, of which we have no record. These objects are almost universally associated by the country people with the *juegos de bola*, and regarded as of aboriginal manufacture.

Two other theories of their use are suggested: They may have been put on the ridge poles of cabins, as figured by Oviedo, to weight down the roofs, or they may have been employed as fetishes in ceremonials for rain, following a well-known custom among primitive people. As these stones are found in or near water and nowhere else, by a confusion of effect and cause it was believed that they must have brought the water. As water-worn stones are regarded by other peoples as efficacious in producing water, so it may have been that the aboriginal Porto Ricans in their primitive reasoning sought out and prized these spherical stones for use in rain ceremonials for crops. There is no statement to this effect in early writings, and the theory here suggested is simply inferred from practices common among other primitive peoples.

The specimens designated *e*, *f*, *g*, on plate XXXI, are spherical or ovate stones collected at different points on the island. Many more were seen but they are all similar to those here figured.

THREE-POINTED STONES

The objects included in this group are characterized by three projections or points. The form of these projections suggested mammæ to Professor Mason, and led him to designate them in his catalogue of the Latimer collection mammiform stones. But this appellation does not apply, as will be seen later, to certain types of these objects, and since all types possess three projections the name three-pointed is a more appropriate term by which to designate them. These three projections may be called the anterior, the posterior, and the conoid. The first two are situated at the ends of the slightly concave flat side, which may be called the base.

If we suppose the object set on this side the conoid projection is situated directly opposite the base. It will be found that its apex, except in rare cases, tips slightly toward the anterior point. The anterior projection in most instances is modified into a head, but in a type from which this head is absent the conoid projection still tips somewhat toward one point, which, on that account, may be called the anterior projection.

The geographical distribution of three-pointed stones is confined to a single region of the West Indies, namely, Porto Rico and the adjacent eastern end of Santo Domingo. They have not been reported from Cuba, Jamaica, the Bahamas, or the Lesser Antilles, and no specimen has been found in North, Central, or South America.

Three-pointed stones fall naturally into four classes: (1) Those with a head on the anterior and legs on the posterior points; (2) those with a face on one side of the conoid projection; (3) those with the conoid projection modified into a head or face; (4) smooth specimens, destitute of head, face, legs, or incised superficial ornamentation.

TYPE WITH HEAD ON ANTERIOR AND LEGS ON POSTERIOR PROJECTION

The majority of these idols belong to this type, which is well marked and readily distinguished from the one next following. It is not always possible to recognize the form of the legs, for the posterior projection often resembles a second head, but no specimen has yet been found which is clearly bicephalic. The axis of the base is sometimes warped, now to one side and now to the other, suggesting rights and lefts, but as a rule is straight. The surface is generally smooth, but in some specimens is marked by incised superficial decorations, pits, and in one instance by a few wart-like excrescences. Remnants of a superficial paint or pitch are found in two specimens. Only in rare instances (figure 18) are anterior as well as posterior limbs cut on the stone. The classification of this type is mainly based on the form of the head.

The three-pointed stones of the first type may be divided into three groups that may be readily distinguished: (1) Those with human heads;

(2) those with reptilian heads; (3) those with bird heads. Stones of the first group have a human face (figure 17), or a monkey-like head with a more or less human nose and generally a band or ridge over the forehead terminating in ears with pendants on the ends. Nostrils are not indicated in stones of this group, and the eyes are commonly round depressions looking forward. In the second group the head is more elongated and reptilian, with the mouth extending backward on the sides, the nostrils mounted on small protuberances, and the nose and the frontal absent. Ears and ear pendants are not represented in this group.

The third, or bird-faced, group is easily distinguished from the human and the lizard-headed groups by the presence of a bird's head, with beak and eyes, and sometimes of wings. Frontal band, nostrils, and ears are wanting and the eyes are placed laterally.

The following objects belong to the first type of three-pointed idols: Plate XXXII represents one of the most instructive examples of the

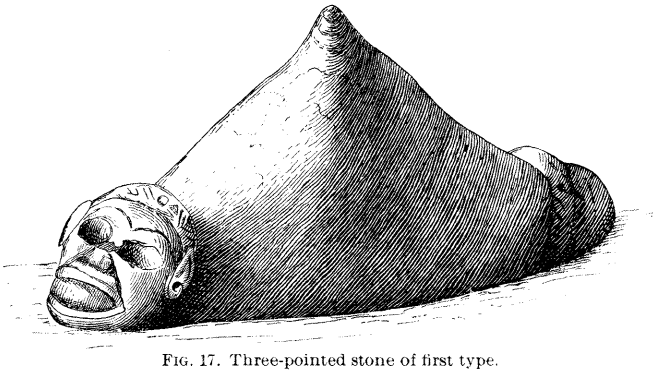

FIG. 17. Three-pointed stone of first type.

first type of three-pointed stones and is unique in several particulars. The conical prominence in this specimen is not pointed but hemispheric, and its surface is decorated with incised figures the arrangement of which is brought out in a view from above (*b*). This ornamentation consists of six circles—one in the middle surrounded by five smaller incised circles, two in front, one on each side, and one in the rear. There are also triangular incised figures, parallel lines, and concentric circles. The break in the line surrounding the middle circle is worth mentioning since it introduces a character repeatedly found in the geometrical decoration of other Antillean objects. The head of the specimen is of human form, with a raised ridge on the forehead. Its feet are drawn to the rump, the toes being represented on the medial line. This object, purchased from Señor Zeno Gandia, is made of marble with yellow veins, its surface being smooth and the base slightly concave and undecorated. It was labeled Santo Domingo and formerly belonged to the Gabinete de Lectura of Ponce, Porto Rico.

The two specimens figured on plate XXXIII (*a*, *b*), where side and front views are given, were obtained by purchase in Porto Rico. They represent the more common forms of the first group, those with human heads. In both these specimens the posterior legs are cut in low relief on the posterior projection, and the conical projection is low with apex turned only slightly forward. The forehead is retreating, the ears are triangular in form and situated at the end of the frontal ridge. Specimen *c*, *c'* is made of soft green stone; *d*, *d'*, one of the largest specimens obtained in Porto Rico, of a black basaltic rock.

In plate XXXIV, *a*, *a'*, are represented two idols of the first type closely similar in form to that last mentioned. One of these (*a*) is a polished specimen with a decided forward inclination of the apex of the conoid projection. The head in this specimen is somewhat better cut than in the last preceding one and in both it is more clearly indicated than the legs.

Plate XXXIV, *b*, *b'* and *c*, *c'*, shows two fine specimens from the Latimer collection, one of which (*b*) is remarkable from the fact that patches of a resinous varnish still adhere to its sides and base. This specimen is also exceptional in having a low conical projection and a very pronounced antero-posterior curve of the base. The face is cut in low relief, leaving the chin very prominent. The posterior appendages are in somewhat more pronounced relief than in the preceding specimen. The specimen figured as *c* has a smooth surface, with a ridge extending from the apex to the margin of the base on each side of the conical projection. The frontal elevation is decorated with incised lines and pits, and the head, seen from the front, is slightly asymmetrical.

Plate XXXIV, *c*, *c'*, is thus described by Professor Mason:

> A highly polished specimen of marble. There is a wide headband across the forehead of the figure, ornamented with chevrons and hemispherical cavities. The right side is the fuller, the bottom concave and rough, and the apex slightly battered. This battering is doubtless an accident, as none of the others exhibit it. Length 10.3, width 4.5, height 5.3 inches.

Professor Mason thus describes a similar object:

> A polished specimen, made of mottled black and white marble. The head and posterior portion are very much flattened out, making the furrows long and shallow. The left side is fuller than the right and the bottom is elevated nearly an inch and hollowed out. Length 10.75, width 4.3, height 4.1 inches.

Plate XXXV shows several three-pointed stones of the first type, in one of which (*a*) there is a human head on the anterior point, while in the other (*b*) the head more closely resembles that of an animal. This is due to the form of the nose, which is flat rather than prominent. Specimen *a* is exceptional also in the shape of the posterior appendages, or legs, which here differ from those in other specimens.

The frontal ridge of figure *a* is ornamented with incised triangles, and on the medial line above the nose it has a pit surrounded by an incised ring. The legs of this specimen are well made and the face is clearly represented. The base is almost flat, instead of curved as is generally the case.

Figure *b* has a larger facial angle and a protuberant chin. Professor Mason thus describes a similar object:

A small, mottled specimen of dark volcanic stone. The face is slashed with deep lines. The furrows are deep, the right side full, and the bottom pecked in the middle and worn quite smooth at the ends. Length 5.8, width 2.1, height 2.2 inches.

Two other specimens figured in plate XXXV are significant. In one (*c*) the nose is large, extending almost as far forward as the chin. The frontal ridge is low and undecorated, ending in large ear pendants; eyes vertical. The conical projection is low and rounded; its base smooth and slightly convex; the legs are in moderate relief.

The other specimen (*d*) from Santo Domingo, purchased in the collection of Archbishop Meriño, has a tapering, conical projection, the apex of which is turned forward; no frontal ridge; prominent eyebrows and eye border, and low nose. There is a shallow pit in the middle of the forehead that is represented in other specimens also. The legs are in low relief, with depressions at the thighs. The base is flat or slightly curved.

In plate XXXVI, *a*, *a'*, is represented a large three-pointed stone from the Neumann collection, made of a hard basaltic rock smoothly polished. The base is curved; conical projection low; head and legs, especially the former, are in high relief. The side view (*a*) shows the deep depression of the bridge of the nose, a pronounced elevated rim about the eyes, and a low frontal ridge. As seen in *a'*, one side of the conical projection is considerably broken, but notwithstanding the mutilation this specimen is one of the best in the collection. Marked features are a retreating chin and a mouth with raised lips.

In the same plate (*b*, *b'*, *b''*) there is shown a rough three-pointed stone in which the facial angle is large, almost a right angle, the conical projection being low and rounded, the legs obscurely indicated. The ear pendants are hardly differentiated from a low frontal ridge. The exceptional feature of this specimen is the warped axis of the body, the right side being almost straight, the left curved. This is one of the heaviest specimens in the collection. Its rough surface and flat base appear to be unfinished.

Professor Mason thus describes this three-pointed idol:

This specimen is of a dark volcanic material. The face and feet are both well turned up. The anterior and the posterior furrows are deep, the left side bulged out, and the bottom slightly hollowed. Length 11.6, width 4.3, and height 5.65 inches.

The three-pointed stones figured in plate XXXVII belong to those specimens of the first type that have human faces. Specimen *a* has two pits on each side of the conical projection and a broad, slightly raised frontal ridge. In neither specimen *a* nor specimen *b* is there a groove between the head and the conoid projection, as is true of most specimens of the first type already considered. The nose of the stone figured as *a* is flattened, of that figured as *b* more pointed. The feet and legs of both specimens are obscurely indicated. Their surface is fairly smooth.

On the same plate are shown also three views (*c*, *c'*, *c''*) of an instructive specimen, the posterior point of which has been broken and the object thus adapted for a pestle; the broken end exhibits evidences of wear, which are likewise visible on the portion of the stone anterior to the conical projection, as is apparent in a view of the base (*c''*). The head of this three-pointed stone (*c*) is well carved; the nose is not projecting, nor the forehead retreating. The frontal ridge is broad and flat and decorated with incised lines, the ear pendants being indicated by circular depressions. The most remarkable feature of this object is the circular depression in the middle of the base surrounded by an incised ring (*c''*). Other three-pointed stones have like basal depressions, but the surrounding ring occurs only in this one specimen.

Professor Mason describes the object figured as *a* on plate XXXVII, as follows:

> A dark volcanic specimen. The headband abuts on the mamma, leaving a very slight furrow in front, but the posterior furrow is deeper. On the sides of the mamma are cup cuttings. The bottom is elevated and hollow. Length 6.15, width 3.2, height 2.7 inches.

Professor Mason's description of *b* on the same plate is as follows:

> A light-blue volcanic stone. The furrows are almost wanting, and, as in a specimen previously mentioned, the feet are reversed. The bottom is very roughly hollowed out. Length 5.6, width 2.4, height 3.6 inches.

Specimen *c* on this plate is thus described by Professor Mason:

> A fine specimen, made of white marble. The face is well executed, the headband being wide and ornamented with cup cuttings and frets. The feet are broken off. Instead of a cymbiform cavity in the bottom, there is a deep cup cutting, around the border of which is a perfectly circular furrow. This object has been battered by secondary use as a pestle. The dimensions are estimated. Length 12.8, width 4.4, height 3.75 inches.

Plate XXXVIII, *a*, *a'*, and *b*, *b'*, represents two fragments of finely cut three-pointed stones, which once may have been parts of a single object; *a* and *b* show a front and a side view of the head; *b'* represents the side view of the posterior point, or legs, while *a'* shows the same from the rear. The frontal ridge is decorated with curved and straight lines, triangles, and pits, and there is a well-marked circular depres-

sion in the ridge above the nose. There are likewise pits at the proximal ends of the thighs. The legs are retracted, the five toes being separated by parallel incisions. The rough broken ends of both these specimens are considerably worn, as if the objects had been used as pestles or pounding implements. The incised decoration in these two objects, as in several others, is brought out in the illustration by the use of chalk.

It is not wholly evident that these two objects once belonged together or formed head and legs of a single object, but the finish of both, no less than the character of the stone of which they are made, supports that conclusion.

Professor Mason thus writes of these two fragments:

17017. The head of a mammiform stone, of white marble. The headband is ornamented with chevrons and three cup cuttings. This was undoubtedly a very beautiful implement. The absence of duplicates in such a large collection is somewhat striking, and yet testifies to the richness of fancy in the artists. This figure, however, is almost identical in material, physiognomy, and the shape and ornamentation of the headband with the head of number 17003. (Plate XXXVII, *c*.)

17018. The foot of a marble mammiform stone. The feet are finely expressed; indeed they are the best looking pair of feet in the whole lot. The thighs are ornamented with chevrons and cup cuttings. This may have been the foot of the object to which the foregoing number was the head, or more probably to the broken specimen described as No. 17003. If not, it is a relic of a very finely wrought implement.

Specimen *c*, plate XXXVIII, is a roughly made three-pointed stone of the first type, showing a long neck and an obscurely indicated mouth and frontal ridge, the legs being slightly raised above the surface. This specimen has the general appearance of an unfinished object or of one whose surface is considerably waterworn. Specimens *d* and *e* of the same plate are both very much waterworn, the second showing breccia-like fragments left in relief by the wearing away of a softer matrix.

Plate XXXIX, *a* to *a''*, shows three views of a three-pointed stone idol, the only one in the collection in our National Museum with a depression at the apex of the conical projection.

The head has a mouth and a pointed snout like a lizard's, but no nose, the place of the latter being occupied by a rounded protuberance with pits, resembling nostrils, on each side. There are no indications of ears, as in almost all other stones representing human heads, and the frontal ridge is here replaced by an elevation, the top of the head. This elevation, however, like the frontal ridge, is ornamented with incised lines and has a median pit surrounded by an incised ring. The posterior appendages are very obscurely indicated.

Professor Mason gives the following description of the stone figured as *b* in this plate:

A rough specimen made of volcanic stone. The face and feet are much flattened out, and the anterior and posterior furrow are broad and shallow. The left side is

fuller than the right. The mamma is slightly winged, or angular, on the sides, front, and rear. The bottom is nearly flat, and very rough. Length 8, width 3.55, height 3.8 inches.

Specimen *c* of this plate has a flattened face as seen in profile, and a low conical projection. Professor Mason gives the following description, with figure, of this specimen:

A dark-colored specimen, of volcanic material. The head is grotesque and high-ridged, making the front furrow deep. Across the thighs is a chevroned band. The right side is fuller than the left. The bottom is warped up and hollowed out. There are four shallow cylindrical depressions on the mamma on a level with the furrows, one on either side of the anterior and posterior portions. Length 11.65, width 4.6, height 4.05 inches.

Plate XL represents the side and top views of a three-pointed stone with a human face in which the chin is protuberant. The frontal band is ornamented with incised lines, and there is a median pit surrounded by a ring. The specimen is made of white stone.

Professor Mason thus describes a similar object:

A dark, mottled, volcanic stone. The face has been very much battered by time. There is an elevated band across the forehead, making the furrows narrow and deep. The right side is fuller than the left, and the bottom elevated and hollowed out. Length 7.95, width 3.5, height 4 inches.

In plate XLI, *a* and *a'* represent a broken three-pointed stone with face, shown in profile view, resembling that of a monkey. The well-marked frontal ridge which ends at either end is obscurely indicated, the ears having the form of knobs.

Specimen *b*, *b'* in this plate has a reptilian head with backward extending mouth, semicircular eyes, and laterally placed protuberances with nostrils, but no frontal band or ridge. This specimen has shallow pits in its surface, one on each side of the base of the conical projection. The posterior point has the appearance of another head, with deep depressions for eyes, which are probably only highly conventionalized leg and thigh depressions. The height of this specimen as compared with its length is less than in any other that has been studied.

In the same plate (XLI, *c* and *c'*) there is shown a fine specimen of a three-pointed stone of reptilian appearance, one of three found together in a cane field near Salinas, Porto Rico, and presented to the Smithsonian Institution by Mr Zoller. In it the main features of the reptilian group are well marked. The head is long, with semicircular eyes, prominent nostrils, and mouth extending backward. There is no frontal ridge and the posterior point has two eye-like depressions obscurely representing the legs. The surface is finely polished and the rock of which it is made is very hard.

The three-pointed stones in plate XLII (*a*, *b*) have lizard-shaped heads and are good examples of the second group of the first type, specimen *a* being one of the best of these stones in the collection. Its head has a

pointed form, which, when seen from above, is almost triangular in profile, with eyes lateral; nostrils, pits mounted on tubercles; mouth extending backward, and lips well represented by a ridge surrounding the mouth. Back of each eye there is a triangular incised figure, and in a prominence on top of the head a small depression. There is no frontal band or ridge, or representation of ears. The surface of the object is smoothly polished and presents a mottled appearance: the rock of which the specimen is made is very hard. The object now being considered (a, a') is thus described by Professor Mason:

Of mottled marble. The head resembles that of a hog or peccary, but is grotesque. The feet are human; the furrows are broad and deep; the left side is fuller than the right, and the bottom is deeply hollowed. Length 12.55, width 5.5, height 5.3 inches.

The specimen designated b has a markedly reptilian head and is one of a few possessing teeth. The eyes are lateral circular depressions, and the nostrils are mounted on tubercles with pits opening laterally. The

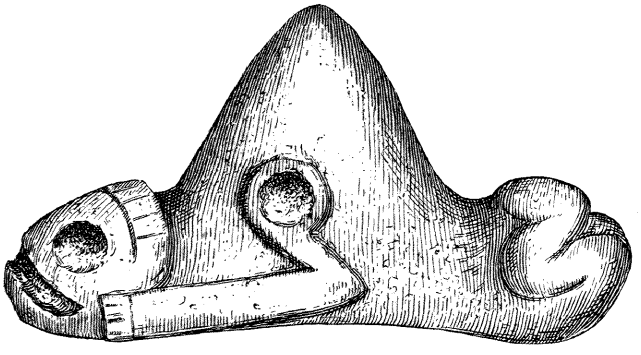

FIG. 18. Three-pointed stone of first type.

mouth extends backward, and the two rows of teeth, one in the upper, the other in the lower, jaw, are indicated by incised lines. The posterior appendages are also well cut, and there are pits on the thighs that resemble eyes.

Of specimen b Professor Mason writes:

A small specimen of white marble. The grotesque head resembles that of an alligator. The feet, as usual, are human. The thighs are ornamented with chevrons and circles. The furrows are narrow and shallow, the left side full, the bottom unusually cymbiform. Length 4.85, width 2, height 2.75 inches.

A three-pointed stone of singular undescribed form is exceptional in showing the forelegs cut in relief on the side of the body. At the shoulder of each there is a shallow pit, which can be seen in several other specimens. This object (figure 18) owned by Mr Yunghannis, of Bayamon, Porto Rico, in the form of the head and in the possession of both fore and hind legs, differs from any other yet figured.

The specimen figured as *c* naturally falls into the third group, or those with bird heads. This specimen is described by Professor Mason as follows:

A dark specimen of volcanic material. The head resembles that of a parrot. The furrows are broad and shallow. The left side is full, the bottom slightly elevated and hollow. Length 6.3, width 2.55, height 2.95 inches.

Specimen *d* has a monkey-shaped head with prominent forehead, but no frontal ridge: eyes shallow; ears obscurely indicated. This rudely made image may belong to either the first or the second group.

Plate XLIII, *a*, represents one of the most instructive of the Porto Rican three-pointed stones of the first type. The general shape of the head is reptilian: eyes lateral; mouth extending backward; nostrils mounted on prominent tubercles.

The legs of the specimen shown in figure 19 somewhat resemble flippers, but the head is human. The legs are so cut on the posterior point as to impart to that region the form of a head, well brought out in the figure. The exceptional feature of this object is the anterior legs cut in relief, one on each side of the conical projection, the toes extending forward. There is at the shoulder of each anterior leg an oval depression corresponding in position to the pits sometimes found in the sides of the conical projection. This specimen was presented to the Smithsonian Institution by Mr Zoller, of the Aguirre Central, Porto Rico, having been plowed up in a cane field near Salinas with the other two elsewhere figured and described.

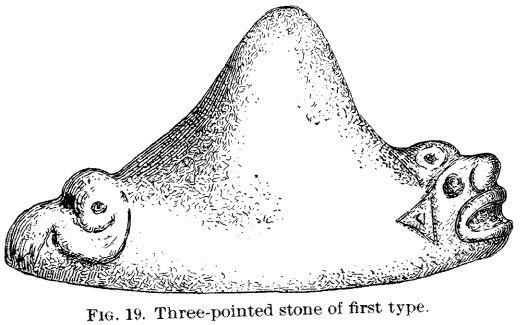

FIG. 19. Three-pointed stone of first type.

Specimen *b*, plate XLIII, represents another bird, much more carefully made than usual. Its surface is smooth, the rock admitting of a fine polish. Head and legs are cut in relief and there is a circular pit on each side of the conical projection near the base. The well-defined bird's head has a long curved beak, lateral eyes, but no frontal band or ridge. The raised area at the side of the beak and head is peculiar to this specimen, but may be the same as the triangular raised areas identified as wings in figure 20. The legs are well cut and more extended than in many specimens.

The object figured as *b* is thus described by Professor Mason:

This specimen is of a light-bluish material. The head and breast of an albatross replace the human head. On either side of the breast and on either side of the front of the mamma is a cup-cutting. The furrows at the base of the mamma in the front and rear are wide and deep. The bottom is warped up and hollowed out. Length 11.95, width 4.5, height 4.9 inches.

One of the most instructive of these objects (figure 20) represents a bird, the body of which would seem to be reversed as compared with the others, having its back for the base, thus bringing the conical projection on the ventral instead of on the dorsal region. The oval elevated areas carved on each side of the back are supposed to represent wings. The specimen is remarkable also in being painted blue, but whether this coloration is native or not could not be determined This specimen is one of the finest of all the stone objects with three points, and is said to have come from Santo Domingo.

Plate XLIII, *c*, represents another idol of the first type, which is one of the best-known specimens of the group with birds' heads. The beak is long and curved; appended to the eyes is a triangular raised area that may represent a wing. On each side of a very low conical projection there are two shallow depressions, shown in the side view (*c*). The base is curved and the legs are obscurely indicated. The specimen was obtained in 1904 in the Neumann collection.

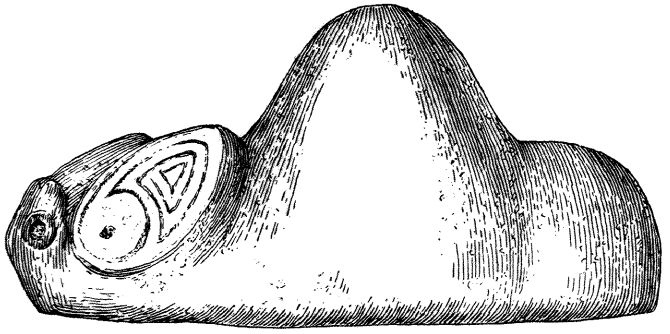

FIG. 20. Bird-form three-pointed stone.

Plate XLIV, *a*, is a three-pointed stone with a bird's head on the anterior projection and what appears to be a second head at the posterior end. It would appear, however, that this second head in reality is highly conventionalized limbs. No neck is represented; the beak is parrot-shaped, the eyes are small, the wings absent.

In the object represented in *b*, plate XLIV, we have one of the most aberrant of these bird forms. The eyes are mounted on globular prominences and the beak is curved downward, and separated from the breast by a slight perforation. The identity of this image is problematical, its affinities appearing to be avian. The specimen is made of hard black rock with a smoothly polished surface.

Plate XLIV, *c*, *c'*, and *c''*, represents side, face, and rear views of an animal which, on account of the owl-like form of the eyes, is identified by Professor Mason as a bird. There is no beak, however, and the mouth resembles that of a reptile or frog. As in several of the preceding specimens, there are grooves back of the head and in front of

the legs, suggesting wear, as if the object once had been lashed to some foreign body. An exceptional feature in this specimen is that it has only one posterior appendage represented, as shown in *c''*. This leg is apparently so twisted that the thigh, indicated by the pit on the side, is brought to the right side of the specimen, the toes and leg being turned to the left. The surface is rough, the base flat, and the apex of the conical projection slightly curved and apparently broken. Professor Mason thus describes this *zemi:*

A dark specimen of volcanic material. The head resembles that of an owl or parrot. The furrows are deep, the right side full, and the bottom flat. Length 4.95, width 2.9, height 2.95 inches.

TYPE WITH FACE BETWEEN ANTERIOR AND CONOID PROJECTIONS

There are only a few known specimens of this type, which differ little from one another. In some of these objects there is a pronounced ridge extending on each side from the apex of the cone to the margin of the base. The anterior tilting of the apex of the conoid projection is pronounced in most of the specimens.

Five specimens of this type occur in the Smithsonian Institution, of which two were obtained from the Latimer collection and three were collected by the author in 1903. The author likewise has one in his possession (figure 21) which came from Santo Domingo and was described in a previous article on *zemis* of that island.[a]

The essential feature of this type is the restriction of the face to the interval between the conical projection and the anterior point, so that the head is not clearly differentiated from the body of the stone, as in the first type. Two of the specimens have two pairs of legs, and in the remaining three appendages are not represented.

Plate XLV, *a*, is a highly polished specimen of dark green stone, well made, with conical projection and other points slender and tapering. The base is rough and slightly curved, the eyes look forward, the ears are oval areas slightly enlarged at the lower end, but without pits. Nose and frontal ridge are absent. From a front view the specimen appears to have an angular appearance, the conical projection narrowing above the eyes to a point. Professor Mason gives the following description of this object:

A highly polished specimen, made of a dark green stone, similar to the material of the most beautiful celts. The ends and top taper out finger-like. The human face is carved on the front of the mamma. The bottom is elevated and roughened, but not hollowed. This is a highly finished and unique specimen, departing quite widely from the typical form, and resembling no other in the collection.

The three-pointed stone represented in plate XLV, *b* and *b'*, and in figure 21, also a fine example of the second type, was presented to the author in 1877 by Mr Edward Hall, of Cambridge, Mass., by whom

[a] *American Anthropologist*, IV, 167, April, 1891.

it was obtained in Santo Domingo city. The three tapering points are of about equal size and identical shape, the length and height of the specimen being approximately equal. This object (shown from the side) is made of a hard basaltic rock, finely polished except on the base and in the cavities of the mouth and eyes. The nose is more prominent than in other examples of the present type; the ear is shaped like a figure 6 (reversed in plate XLV, *b*). There is an indistinct incised decora-

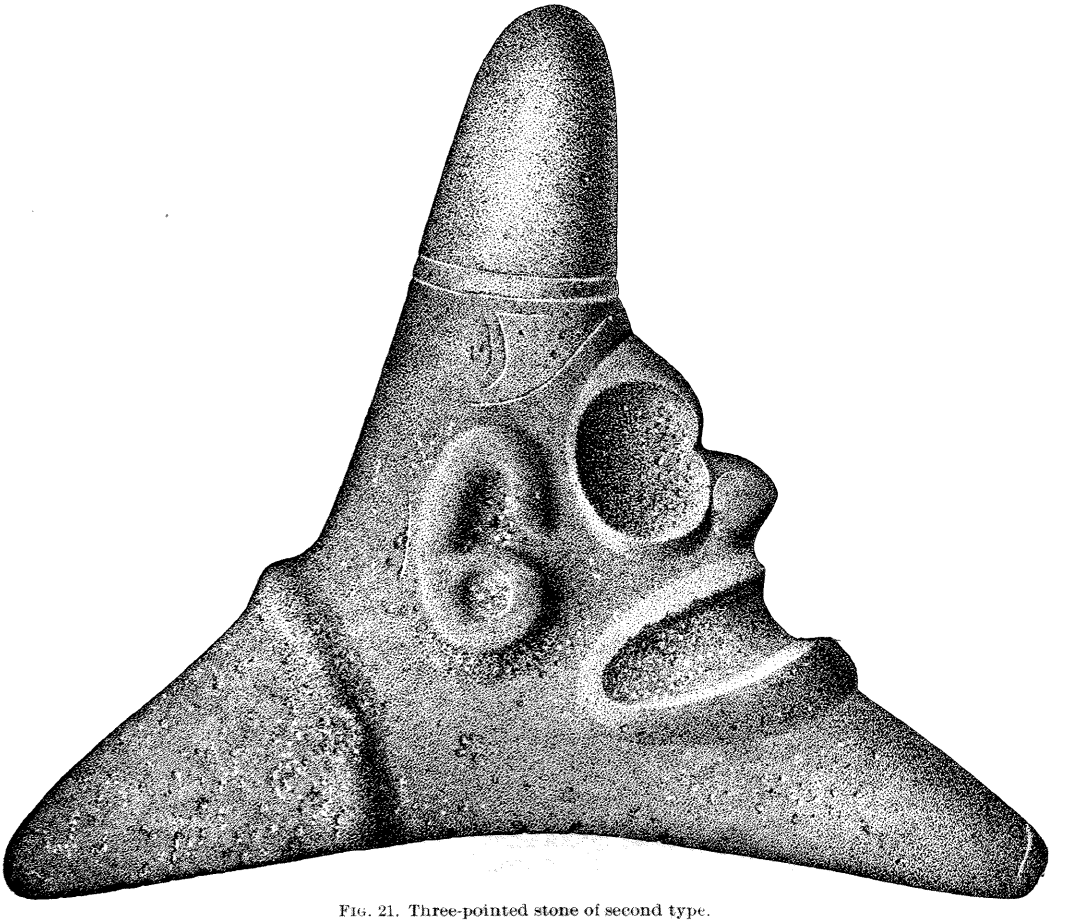

FIG. 21. Three-pointed stone of second type.

tion above the forehead and on the nose; the ferrule surrounding the posterior end is somewhat more prominent than in the two specimens immediately preceding.[a]

Specimen *c* of the same plate (XLV) has a rough surface, but indications of more detail than the preceding. The conical projection, figure 22, is very low, rising scarcely above the eyebrows. Eyes and mouth face anteriorly. Fore legs are cut on the sides of the conical projec-

[a] See an article by the author on Zemes from Santo Domingo, in the *American Anthropologist*, IV, 167, April, 1891.

tion, fore feet on the anterior projection. Hind legs are obscurely indicated. A circular pit is present on the upper part of the posterior point. There are obscure indications of a backbone.

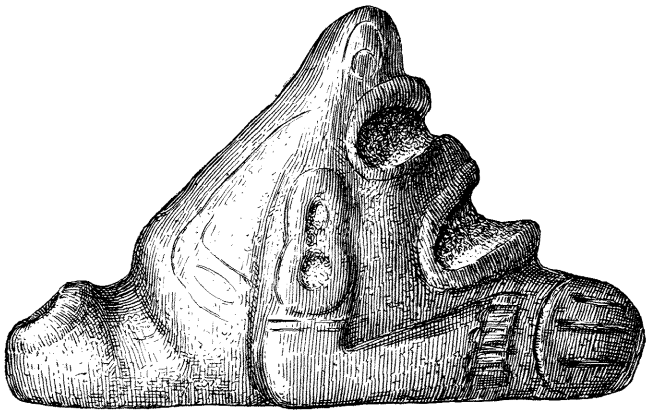

FIG. 22. Three-pointed stone of second type.

Figure 23 is in a private collection. It resembles figure 21, but in it a ring replaces the figure 6 representing the ear.

Plate XLVI represents one of the finest specimens of three-pointed stones of the second type, and is thus described by Professor Mason:

A curious specimen, made of mottled flinty limestone. The projecting ends are entirely wanting. The front of the mamma or cone exhibits a grotesque human face. The rear is carved to represent a frog, whose nose forms the apex of the stone, and

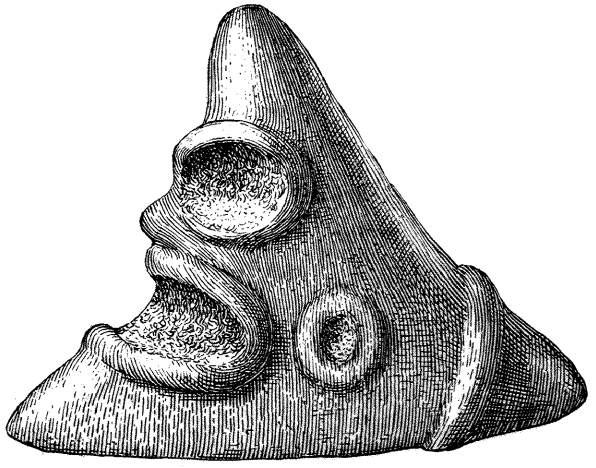

FIG. 23. Three-pointed stone of second type.

whose back and hind legs, drawn up, fill the remaining surface. The fore legs pass down the sides of the cheeks and under the lower jaw of the human face in front. This is truly a marvel of aboriginal art, and may be set down as the best specimen of this class in the collection.

The face is clearly cut, having well-made nose, eyes, and mouth. The decorated frontal band ends on the sides in spirals forming the ears. The general appearance of the face is human rather than reptilian or frog-like, recalling in several features specimens of the first type with human heads.

Perhaps the most instructive feature in this specimen is the arrangement of the organs represented on the region opposite that on which the face is cut, or that between the apex of the conical and posterior projections. The apex takes the form of a small rounded knob just above the frontal fillet. From the shallow groove that separates the apical knob from the backbone arise the anterior appendages, which closely follow the outline of the headband, extending below the mouth, where they end in representations of hands, the fingers being indicated by five parallel lines, above which are incised the armlets and bracelets.

The backbone is represented by three pairs of rectangular vertebræ inclosed in extensions from the shoulders, each with a central pit. Six parallel, slightly curved lines on each side mark the ribs.

The posterior appendages are retracted, with knees pointing forward and feet drawn together and toes extending backward. There are depressions at the proximal end of the thighs, as in other specimens, and in the outward-turned soles of the feet are semicircular depressions surrounded by an incised line, a feature which we find often repeated in other graven images of the foot. Just below the feet is a beading, or elevated band, connecting the rim of the base on each side. This structure appears to be confined to the three-pointed stones of the second type, and will be referred to as the posterior band.

It will be seen in comparing this specimen with others of the same or different types that nowhere else do we find so many parts of the body represented. If three-pointed stones are homologous, and the conoid projections of all are morphologically the same, it is evident that this structure belongs to the head region and not to the body or any part below the shoulders; in other words, the conoid projection is an appendage of the head and not of the back. The batrachian semblance which Professor Mason discovers in this specimen is not apparent, for the face, as well as limbs and body, seems to be strictly human.

The three-pointed object figured in plate XLVII, where it is represented from side and rear, is one of the best examples of three-pointed stones of the second type. It is said to have been found near Bayamon, Porto Rico, and was purchased from Señor Angelis, of Cataño, in 1903. The object is made of a black stone with finely polished surface probably once covered with a resinous gum. The face depicted upon it is grotesquely human, the conical projection is low, the anterior and posterior ends are pointed, the nose is slightly protuberant, the mouth wide open, and the ears are formed like the figure 6 reversed. The back of the specimen is decorated with incised lines—a circle with a

central pit, surrounded by triangles and parallel curved lines. The break in the encircling line shown just below this pit is significant and characteristic of Antillean ornamentation. The posterior band extends from one edge of the base to the opposite side below the decorated area, separating that area from the posterior point. The base is flat, or slightly curved, and roughly pecked. The incised ornamentation of the region between the apex of the conoid projection and the posterior band is exceptional.

If stones of the second type were attached to staves or to stone collars this posterior band would prevent the lashing by which the object was fastened from slipping over the posterior point; in stones of the first type this end would be accomplished by the enlargement of the posterior appendages.

TYPE WITH CONOID PROJECTION MODIFIED INTO A HEAD

This very rare type is represented by only three specimens, if we exclude the closely related stone heads or masks. Two of the specimens that undoubtedly belong to this type have legs represented; one has these appendages on the sides of the conoid projection, the other at the throat just below the mouth.

This type, first differentiated and described by the author in his article on Porto Rican Stone Collars and Tripointed Idols, is not known to be represented in any collection except the Smithsonian, and no example of it is found in the Latimer collection. The two specimens upon which the type was constructed were purchased in the Archbishop Meriño collection from Santo Domingo. Another specimen was obtained in the Neumann collection, and a fourth, more aberrant, was purchased from Señor Zeno Gandia in 1903. The distinguishing feature of this type is the total absence of the conoid projection, or rather its replacement by a snout or face. The type serves as a connecting link between three-pointed stones and stone heads or masks, to be considered later. There is a strong probability that this rare type is strictly Dominican, for three of the specimens are known to have come from Santo Domingo, and the locality of the fourth, that of the Neumann collection, is doubtful.

Plate XLVIII shows views from side and top of one of the most striking objects of this type. While the general form of this object is three-pointed, the anterior and posterior points being similar in form to specimens of the second type, its base is identical in form with that of all other three-pointed stones.

The apex and the sides of the conoid projection are here occupied by an elongated snout with mouth and lips, the whole figure being slightly inclined forward. Between the mouth and the rim of the base there is a series of parallel, roughly cut chevrons, inclosed between two incised grooves that skirt the lower lips. The eye is an

elongated oval depression, and the nostrils, one on each side, are mounted on tubercles. When seen from above it is to be noted that a median pit is situated in the forehead. Between the eyes and the nasal tubercles occur a series of lateral and three roughly incised median parallel grooves.

At the throat region, corresponding to the bands in the second type, there is a ferrule, suggesting that the stone may have been lashed to some other object. A similar structure, which may be called the anterior band, occurs below the forehead. No appendages are represented in relief on the sides. The surface of the specimen is rough, the indications being that the soft gray limestone of which it is made may have been much eroded by the action of water. The evidence is strong that this object, like some other specimens of the third type, was once attached to another body, as certain portions of the former plainly show the wearing action of the cords with which it was fastened. As signs of wearing are evident, it would follow that the furrows now seen on the surface indicate more or less movement of the cords on the stones.

Plate XLIX represents three views of another beautiful specimen belonging to the third type of three-pointed stones that was purchased from Señor Neumann Gandia, of Ponce, P. R., in 1904. The anterior and posterior points do not differ from those of some specimens of the second type, but the conical projection is occupied by a snout, the mouth extending from the apex almost to the base on each side. The lips are cut in relief; the mouth is closed. There are representations of eyes and nostrils, the former appearing as circular depressions, the latter as pits mounted on tubercles. In the middle of the forehead there is a circular depression like those found in the frontal ridges of several specimens of the first type. Above this median depression is a decorated band, on which there are two laterally placed tubercles, each of which has a pit. The specimen has likewise representations of two legs, the knees being drawn up to the throat region, while the fore legs and feet are brought together on the median line. The superficial incised ornamentation of this object, especially that of the region between the nostrils and eyes and on the band above the latter, is remarkably well executed. There are no indications of ferrules or grooves.

The third type is represented in the author's collection by another specimen also (plate L, *a*). It was purchased from the archbishop of Santo Domingo in 1903. While undoubtedly belonging to this type, the form is somewhat aberrant; for, although the anterior and posterior points are similar to those in the second type, the conical projection is replaced by a head with mouth and eyes. This specimen is rather roughly made of a brown-gray limestone, and shows marks of considerable weathering. The eyes are simple depressions, with no evidence

of nostrils. The head is globular, standing out in high relief above the basal region of the stone. There are indications of anterior legs below the lower jaw; but, as in other specimens of this type, there are no posterior legs. This object has nothing resembling a reptilian head or that of a bird; it can not be identified as a human effigy, and its form is different from that of any known idol from the West Indies.

In plate L, *b*, *b'*, are represented face and side views of an object the natural affinities of which are evidently with the third type of three-pointed stones. The homologues of the anterior and posterior points, as well as of the base, of a three-pointed stone can be clearly seen, but the whole of the conical projection is occupied by a rude figure of a human head. This likeness is only a distant one, for the nose is flattened, recalling that of a bat, although the eyes, chin, cheeks, and forehead strongly suggest a human face. An elaborate band with intricate incised superficial decorations extends over the forehead, recalling the same feature in other carvings of the human head by the Antilleans. This specimen affords an easy transition from true three-pointed stones of the third type to stone heads, called masks, of which the prehistoric Porto Ricans had numerous varieties. This object is labeled Santo Domingo, and was purchased from Señor Zeno Gandia in San Juan, P. R. It probably once belonged to the Gabinete de Lectura of Ponce.

SMOOTH STONES

This type includes those specimens that are destitute of face, head, or limbs, and without superficial ornamentation. To it belong some of the smallest known specimens, one of which is barely an inch in length. None of the known specimens have posterior legs and one only has anterior limbs on the conoid projection. The surface is generally smooth, sometimes showing traces of a varnish. One specimen has the side opposite the face decorated with incised geometrical designs. In a former publication the author suggested this fourth type to include such forms of three-pointed stones as are evidently finished objects and yet destitute of carved effigies, human or animal, upon their surfaces.

The objects of this type are few in number. Two specimens are well represented in plate L, *c*, *d*. One characteristic feature can not be passed without notice, as it seems to prove them identical in character with decorated three-pointed stones, to which they closely approximate in form. The apex of the conical projection tips slightly forward, or rather, when seen in profile, one side is more curved than the other.

This character is well brought out in the specimen figured as *c*, plate L, representing a three-pointed stone of this fourth type. One of the specimens in the author's collection, closely resembling *c* in form, is not quite an inch in length. Specimen *e* does not properly belong

to the fourth type of three-pointed stones, although it shares with this type the absence of head or limbs. It is very probable that this is an unfinished specimen, but it may possibly be a highly conventionalized form of the first type. Its anterior and posterior projections resemble knobs without sculpture, but there are indications of grooves obscurely seen on the anterior and posterior sides of the base of the conoid projection, suggesting that it was lashed to some foreign body. It must be acknowledged that if this stone were tied to the end of a handle it would be a most effective weapon of defense, the conical projection serving the same purpose as the edge of a celt. It has been suggested, in fact, that all these stones were weapons or heads of weapons, the indications of lashings showing their former attachment to handles. The highly ornamental forms would thus be regarded as merely ceremonial, while forms such as that figured in plate L, *e*, are practical weapons and were used in war.

INTERPRETATION

The author has discussed the meaning and use of these peculiar objects in an article[a] from which the following quotation is extracted:

> The use of the tripointed stones is as enigmatical as that of the stone collars or rings. Many authors have regarded them as idols, while others consider them as decorated mortars on which grain, seeds, or pigments were ground. In the latter interpretation the conoid prominence is regarded as a support which was embedded in the earth, thus imparting stability to the object, while the concave base, turned uppermost, served as a grinding surface.
>
> Two objections may be urged to the theory that these triangular stones are mortars or grinding implements.[b] In the first place, we can hardly suppose that one of these objects of the fourth type, which is only an inch in length, could have been very effective if used in such a way; secondly, some of these specimens have all of their sides as smooth as glass, showing no surface upon which anything could have been ground. In the third type the conoid prominence is highly ornamented, which would hardly be the case were this part buried in the ground, thus hiding the decorations from view. The conoid projection is not of proper shape for holding in the hand—a vital objection to the theory that the tripointed stones were used for rubbing.
>
> But perhaps the strongest objection to the theory that the tripointed stones were used as mortars or rubbing stones is presented by a specimen in the Latimer collection, which has a portion of the flat base covered by a superficial layer of resinous-like gum or varnish. There are other specimens which lead me to believe that several of these stones, like some of the wooden idols, were covered with a similar substance, the occurrence of which, still clinging to the base, shows the absurdity of regarding this as a polishing or grinding surface.

Professor Mason does not commit himself to either the mortar or the idol theory. He says:

> The rough under-surface of the mammiform stones suggests the grinding of paint, incense, spice, or some other precious material, and the natives are said by the his-

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a Porto Rican Stone Collars and Tripointed Idols. *Smithsonian Miscellaneous Collections*, XLVII, pt 2, 178–182, 1904.

b Many specimens of pestles with handles cut in the form of birds, quadrupeds, and human beings might be mentioned in this connection.

torians to have been fond of aromatic substances. Against this it may be urged that they are too costly for mortars; that some are hollowed underneath, some are flat, and some are convex; and that though very rough on the underside the roughness seems to be that of an original pecking, excepting at the chin and knees of the Typhoean figure, where the stone is worn smooth. The furrows at the base of the mammæ seem to indicate the custom of lashing them to a staff as ensigns, or to dash out the brains of a victim or an enemy. There is no mention, however, so far as I am acquainted, of the natives performing human sacrifices. This lashing theory is strengthened by the fact that on some of the masks which closely resemble the mammiform stones there are cleat-like projections, evidently to be lashed to a handle. There are no grooves worn in the furrows by a lashing that I could discover. The bulging to one side of the mammæ, some to the right, others to the left, hints at their use in pairs.

The theory that the three-pointed stones are idols has many advocates, although some of the interpretations of the gods they represent are entirely speculative. Doctor Stahl,[a] in his chapter on religion, by limiting the term to a belief in a supreme beneficent being, or god, and a malignant being opposed to this deity, finds that the Borinqueños were absolutely destitute of religious ideas ("carecian en absoluto de ideas religiosas"). He may be right in his criticism of Oviedo and other historians, that they read their own ethical ideas into their accounts of the West Indian religion, but he is certainly in error in concluding that there are no proofs, archeological or otherwise, to justify belief in the existence of any religious cult among the Borinquen Indians.

"The Antilles," writes Professor Mason, "are all of volcanic origin, as the material of our stone implements plainly shows. I am indebted to Prof. S. F. Baird for the suggestion that, from the sea, the island of Porto Rico rises in an abrupt and symmetrical manner, highly suggestive of the mound in the mammiform stones, so that with the aid of a little imagination we may see in these objects the genius of Porto Rico in the figure of a man, a parrot, an alligator, an albatross, or some other animal precious to these regions where larger animals are not abundant, supporting the island on its back."

Earlier in this article the author has referred to a few paragraphs by Professor Mason regarding the legend of Typhoeus, killed by Jupiter and buried under Mount Etna. As the latter points out, "A similar myth may have been devised in various places to account for volcanic or mountainous phenomena."

According to Agustin Navarette, Dr Calixto Romero Cantero in his refutation of Doctor Stahl recognized in this three-pointed figure the genius of evil weighed down by Borinquen, represented by the mountain Lucuo, or Luquillo, and symbolized by the conoid promi-

[a] Los Indios Borinqueños, p. 157–172. In this chapter Doctor Stahl makes no reference to Ramon Pane and other writers who have given the most authoritative accounts of the religious concepts of the Haitians. There is little doubt that the Borinqueños resembled the Indians of Hispaniola in their religious as well as in their secular customs.

nence. He finds this theory of Cantero as objectionable as that of Doctor Stahl that the Borinqueños had no religion, because there is no reason to believe that the Kiche god Cabraken was thought to be buried under Borinquen. Navarette[a] finds in this image a "cosmotheogonic" (cosmoteogónico) symbol, conforming perfectly with a tradition given by Buret de Longchamps. "The cone," he says, "is chaos, from which in the form of sunken rocks (escollos) arose Taraxtaihetomos, the 'principio creador' perfectly defined, represented by the head, and Tepapa, the inert unformed matter, represented by the posterior part 'crossed by rays' (posterior appendages and feet)." The universe was born from this "principio creador" and matter, as was likewise the firmament ("bóveda que cubria la tierra"); hence he asserts the base (of the three-pointed stone) is scooped out in the form of an arch. "In a word," says Navarette, "this figure (three-pointed image) is a *semi* (*zemi*), the unique Indo-Borinqueño idol, in which is symbolized the creator and inert matter on two sides of chaos, which extends over the firmament (bóveda del universo)."

The author's chief objection to Doctor Cantero's interpretation of the symbolism of the three-pointed idols is that he elevates a "genius of evil" to a place it never occupied in the mind of the Antilleans. There is no satisfactory proof that the Borinqueño Indians ever recognized a god of evil as we understand the conception. They no doubt believed in a great being whose power causes the terrible hurricanes which at times sweep over the island, and they possibly personated or deified this power as a great snake god. The early missionaries readily imagined that this deification of a mythic serpent was the analogue of their own personification of evil, but this interpretation was wholly their own, not that of the Indians.[b]

Navarette advances no adequate support for his statement that the conoid projection represents "chaos," and gives no authority for the statement that the Antilleans believed that the union of the "principio creador" and matter gave birth to the universe. The author must take issue with him also in his statement that the *semi* (*zemi*) is the unique "Indo-Borinqueño" idol in which is symbolized this "principio creador," believing he has mistaken the true meaning of the term *zemi*. Although the great Sky god may have been called a *semi*, *chemi*, *cemi*, or *zemi*, the word probably means not one but many subordinate supernatural beings, as was elsewhere pointed out. Tutelary gods are called *zemis*, in which case the word has simply the same meaning as clan totem. These three-pointed Borinqueño idols have different forms, representing reptiles, birds, and human beings, a fact which makes it

[a] Estudios de arqueologia de Puerto Rico, resultados de una excursión científico, articles 1 to 7, first printed in the periodical *El Noticio*, May, 1896; reprinted in *Aquila*, Ponce, April and May, 1904.

[b] The word *mabouya*, used by the Antilleans as a name of some of their gods, as well as of images of the same, is probably derived from *ma* (great), *boya* (snake). The same word, *boya*, from which comes the English *boa*, likewise gave the name *boiti* (sorcerers) to some of their priestly orders.

improbable that they represent one great supernatural being or creator ("principio creador").

The comparison of the head of a three-pointed stone with a "creator" and of the feet with "matter," the conical projection representing "chaos," has no historical evidence to support it, while the recognition of the arch of the universe in the curved base is equally unsupported. The second and third types of three-pointed idols show the absurdity of the entire theory of the nature of the three-pointed stones as expounded by Navarette. In the last type mentioned "chaos" has evidently been replaced by a huge monster whose mouth occupies the place of the conoid projection.

This likeness of the three-pointed stone to a god or genius of Porto Rico buried under a superimposed mountain represented by the conoid projection is marked in the first type, less evident in the second, and wholly absent from the third and the fourth. All theories which compare the conoid prominence to a mountain, to chaos, or the like, fail to account for the heads found in the first type.

The three-pointed stones represent supernatural beings of different kinds, anthropomorphic and zoomorphic. The Borinqueño Indians, like those of Haiti, recognized one great supreme god, but he was not a creator. Ramon Pane distinctly states that this god had a mother, whose five names he has mentioned.

The author regards the three-pointed stones as clan idols or images of tutelary totems—true *zemis* in the sense in which the term is employed by most of the early writers. The difference in their forms denotes different conceptions of the *zemi* in different clans. Each cacique, no doubt, had one or more of these images, representing his clan *zemi* and such others as he had inherited or otherwise obtained. The writer regards them as the idols of which Pane wrote: "Each one (Indian) worships the idols of special forms called *zemis*, which he keeps in his own house." He refers to three-pointed idols when he speaks of stone *zemis* with "three points, which the natives believe cause the *guica* (yucca?) to thrive."

In a discussion of the many interpretations of the three-pointed stones which are suggested, we must not lose sight of the fact that several bear well-marked signs that they were lashed to some foreign body, and that in one or two specimens this evidence of lashing is so plain that it can not be disregarded. There are specimens where the cord used in tying the object to another has worn grooves in the stone itself; a feature that has been noticed by several writers and is too prominent to be overlooked.

It will be seen in the discussion of the use and meaning of the other great enigma in Porto Rican archeology that one of the theories of these objects is that the three-pointed stones were once attached to one of the panels of the stone collars, but a comparative study of the various

forms or types of both groups has failed thus far to support this theory.

It does not seem probable that the three-pointed stones were worn on the head. The little idols which the older writers say were attached to the forehead when the Carib went into battle are supposed to be the amulets that are treated in subsequent pages. The curvature of the bases of the three-pointed stones does not fit the human forehead or cranium, although they might have been attached to crowns and worn in that way.

The worn grooves seen in some specimens suggest that they were used perhaps as implements, but it can not be asserted that the very small specimens would have been effective for the purpose.

It is clear that however they functioned the figures they represent—human beings, lizards, birds, and other animals—they were something more than ornamental, especially when we take into consideration that the islanders worshiped idols of these varied forms. From whatever side we approach the subject, we come back to the conclusion that they are idols, or *zemis*. If they were not actually worshiped, they assumed forms which are duplications of idols that were worshiped.

It will be noted, in a comparison of the carvings on the anterior projection of three-pointed stones of the first type, that, when any attempt is made at carving these objects, the head is always represented and that this region is the best made of all regions of the stone. This is a universal feature in all aboriginal technology—that the head of the idol receives the most care, not only in sculpture, but also in painting and all other delineations of men or of animal idols. Legs, arms, wings, or body are regarded as of secondary importance and are, as a rule, more highly conventionalized. Possibly this is due to the idealistic nature of primitive art. The aboriginal artist represents that which he regards the most important character in the god depicted, sometimes resorting to symbolism for that purpose, neglecting those parts which to his mind are not so important. His figures are at first idealistic, rather than realistic, representations.

Semicircular Stones

The form of these objects, especially the cleats on each corner, suggests very strongly heads of striking implements attached to handles. It may be mentioned as corroborative evidence of this use that the marks of the lashing are clearly evident in the specimens figured in plate L, *g* and *g'*. These specimens are quite distinct in form from the three-pointed types already described, and, so far as is known, are represented in our collection by only two specimens, both from Porto Rico. These are typical of a distinct class, unrelated to the preceding three-pointed stones, but with certain resemblances

which have led to them being considered with such stones. The two specimens on this plate, like several of the three-pointed stones, show evidences that they were once attached to some foreign object.

Specimen *f* is half disk-shaped, with two ear-like lappets, one on each side. As figured in *f''*, one side of this object is more flattened than the other. Eyes and mouth are obscurely indicated.

A second specimen (*g*) has a similar form but is destitute of eye and mouth markings and of the flattened surface.

Stone Heads

We pass now to the consideration of another group of stone objects peculiar to the West Indies, the use of which is unknown. These are called masks by Professor Mason and in some instances this designation is the most convenient yet proposed. "It requires," writes Mason, "a slight stretch of imagination to call the objects included in this class masks. The only ground upon which we do so is their resemblance to many of the false faces or masks worn in pantomimes. These, of course, never could have had any such use. Three of them are somewhat similar to the objects just described (three-pointed stones). The bottoms are hollowed out, there are furrowed depressions at the base of the prominence, and the mammiform elevation is grotesquely observed, being replaced by a face, the Aztec nose forming the apex of the stone. The Typhoean figure is sometimes present." An examination of the series of these objects in the Latimer collection, and of the several others which he has brought from Porto Rico, has convinced the author that the majority of these objects were never used as face masks in rites or ceremonies. Some of them show evidences of having been lashed to other bodies and several fit the palm of the hand, while others are perforated as if for suspension. Evidently two radically different types of stone objects, neither of which were worn over the face, have been embraced in the designation "masks" as the word is used by Professor Mason. In this monograph the author differentiates these two, and considers them under the separate titles of "Stone heads" and "Disks with human faces." The former are connected in form with the three-pointed stones of the third type; the latter have no such relation.

The stone heads have as a rule an oval form, with a human face cut on one side, while that opposite the face, or the base, is flat or slightly concave. There are two types of these stone heads, (1) those with a basal region flat on one side with a head standing out in relief on the other, and (2) those in which there is no differentiation of head and basal region, the back of the head being simply flattened. Naturally the two types grade into each other. Disks with faces on one side are flattened forms of the latter type. The basal region sometimes is of

lenticular form, which in rare instances is altered by prolongations of the forehead and chin. Disks have no sign of a differentiated basal region.

The head figured in plate LI, *a*, is thus described by Professor Mason:

> Mask of gray volcanic material. The head and foot are simple knobs. The forehead and cheeks are furrowed and the bottom elevated and very hollow. Length 8.65, width 4.8, height 6.25 inches.

This object, shown in face view (*a*) and in profile (*a'*), is three-pointed in form, the anterior and posterior points appearing as knobs, the conical projection representing a human nose. The base is slightly concave but not separated from the head, showing signs of once having been fitted on another body, to which it may have been lashed by cords passing over the two ends.

Specimen *b*, *b'*, of plate LI is more nearly globular, the head rising in high relief from a basal region continued anteriorly and posteriorly, the former extension situated on the forehead, the latter at the throat. The sunken eye sockets are surrounded by an annular ridge, which is repeated about the mouth. The nose is small and cut in low relief. The base is flat.

The head shown in face view and in profile, plate LII, *a* and *a'*, has both chin and forehead much elongated, forming cleats on which are grooves for a cord used in attaching the head to a foreign body. An ear (see *a'*) is obscurely indicated on one side. This specimen bears a rude imitation of a head on the lower projection and of legs on the upper one, or the forehead, in this respect suggesting the first type of three-pointed stones. It appears that this specimen represents either a compound of a stone face and a three-pointed idol or a unique stone head with lateral appendages.

The stone specimen figured in this plate as *b* and *b'*, from the Zeno Gandia collection, is one of the finest of these objects yet found. The incised decoration of the band above the forehead consists of circles, triangles, and other markings, portions of the nose and lips being indicated in the same way. The ears, rarely found in stone heads of this form, are slight projections at the ends of the frontal band. Markings indicative of former lashing to another body are clearly shown.

While specimen *c*, *c'* of plate LIII exhibits the same general form as that last mentioned, it is more roughly made and destitute of surface decoration. Whereas the base of the former is slightly concave, that of the latter has only a slight curvature, the basal region being only slightly differentiated from the facial and the line of separation showing well in the profile. Professor Mason dismisses this specimen with the following brief mention:

> Mask of mottled volcanic stone. The ends are simply rounded and the bottom hollow.

Specimen *a*, *a'* is a well-made stone head in which the basal part has lost all semblance to a three-pointed stone, being continued anteriorly and posteriorly into two protuberances. The forehead overhangs the eyebrows and the deep-sunken eyes form marked notches in the profile. There is no raised nose, as in the preceding specimen, its place being occupied by a flat triangular area; the ears and ear pendants are cut in high relief. The basal region is widely separated from the facial. The projections on the back of this head give strong evidence that it was formerly attached to a foreign body, possibly to a staff, which was carried in processions or set in the earth to raise the image before the worshipers.

Specimen *b*, *b'* of the same plate (LIII) has a flat nose as in that last mentioned, but the interval between the eyes is continuous with the forehead, showing no notch when seen in profile. There is a medially placed pit in the forehead. Projections for attachment to a foreign body are present, but smaller.

Professor Mason figures this object and the last preceding one described, but groups it with three others in a very general mention, in which he calls attention simply to "cleat-like projections on the back, scarcely admitting of a doubt that they were designed for fastening to a handle or pole."

The flattened nose area reappears in the stone heads represented in plate LIV, *a*, *a'*. Although destitute of a projection above the forehead, this object has a prolongation below the chin, resembling a handle, by which it may have been carried. The back of the head in this specimen, which has a very rough surface, is rounded and not unlike the base of three-pointed stones. In specimen *c*, *c'* on this plate the object represented is almost spherical, having a deep groove which separates the basal region from the facial. This specimen is unique in that the chin is ornamented with incised decorations. The nasal area is also triangular and flat, as in the majority of these stone heads. There is no band above the eyes. The basal region is lenticular, slightly convex, and of about equal diameter throughout. Professor Mason gives no description of this unique object, but groups it with several others that show cleats for attachment, although this specimen is rather unfortunately chosen to illustrate this condition.

Disks with Human Faces

The second type of objects placed by Professor Mason under the heading "Masks" has little in common with the first, or stone heads. The name disk more properly describes these objects, as they have only the most remote resemblance to masks, and as they bear little evidence that they were ever tied to other objects. It is possible that these disks were carried in the hand on ceremonial occasions, or they may have served as symbolic masks, but their size and shape are such that

they could not be worn over the face. The custom of carrying similar objects in the hand seems to have been practised in certain parts of Central America, and we have clay images from Costa Rica bearing heads in their hands, one of which is figured by Mr Hartman. While, therefore, as acknowledged by Professor Mason,[a] it requires a slight stretch of the imagination to call the objects included in this class masks for the face, he deems it not impossible that they may have served a similar purpose when carried in the hand or may have indicated the god personated. Professor Mason describes one of these objects as follows:

> There is one mask, discoidal in form, from the periphery of which two cylindrical knobs proceed, looking again very much like attachments for a handle.

The use of wooden masks was common in some islands of the West Indies, but the only specimen thus far known is in the capitol at Port au Prince, Haiti, a good figure of which is given in Doctor Cronau's Amerika. Apparently these wooden masks, like those made of stone, were painted and incrusted with ornaments of metal or stone, and were worn over the face. It is possible that the wearer, when thus using them, was supposed to personate a god or *zemi*.

There are one or two references in early writings to the wearing of masks by the Antilleans, as on the occasion of the visit of the Cuban cacique to Columbus.[b] We are told by Bernaldez that when the ship of Columbus was off the coast of Cuba it was approached by a canoe in which was the cacique, who brought with him a man who acted as standard bearer. This man stood alone in the bow, "wearing a loose coat of red feathers resembling in shape those of our kings-at-arms, and on his head was a large plume, which looked very well; and in his hand he bore a white banner, without any device. Two or three men had their faces painted, all in the same way, and each of these wore on his head a large plate, in shape like a helmet, and over the face a round tablet, as large as a plate, likewise painted, all in the same style, for neither in these tablets nor in the plumes was there any difference."

From the size and the general appearance of masks obtained from the West Indies, there is reason to believe that many of them could not have been worn but must have had some secondary use and symbolic meaning. It is probable that these masks, large or small, were sometimes exchanged as symbols of fealty, from the fact that they were presented to those whom the givers regarded as superior persons or gods.

On several occasions Columbus received such presents, often of elaborate workmanship. The presentation meant much to the Indian, for, judging from the sacred way in which primitive man regards

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[a] Catalogue of the Latimer Collection, p. 384.

[b] Washington Irving, Life and Voyages of Christopher Columbus, New York, 1866.

ceremonial paraphernalia, especially masks, nothing could show greater respect than gifts of this nature, some of which were plated with solid gold, and all no doubt were of great antiquity. Las Casas says that the cacique Guacanagari gave Columbus a great mask with the ears, eyes, and tongue made of gold.

These masks doubtless had other uses than as symbols of fealty. They may have functioned in a way somewhat similar to images among the Saliva of the Orinoco, who mounted figurines of animals and of human heads or masks on poles, which they deposited near mortuary tumuli. With the Orinoco tribes this was done with great ceremony and accompanied by dances, the nature of which rites at this time may be learned by a study of Gumilla's valuable account[a] of the Saliva Indians.

The object figured as *b*, *b'*, plate LIV, is a specimen of the discoid stone heads, which are classified as ceremonial masks. It has eyes, nose, and ears well indicated, depressions marking the upper limit of the eyebrows. The back of this specimen (*b'*) is rounded, showing the natural surface of the stone of which it is made.

Specimen *a* of plate LV has a flat nose, above which, in the middle of the forehead, there is a pit. There seem to be indications of legs drawn close to the chin, the feet being brought together at the median line. The back of this specimen (*a'*) is only slightly convex—almost plane—and has a rough surface. There are indications of ears on both these disks, appearing as simple lateral projections on the level with the eyes and nose. The eyebrows are outlined by incised lines.

Specimens *b*–*e* represent stone disks without protuberances, the back being flat or slightly convex. The one figured as *b*, the most artistic of these disks, shows a well-cut face which is surrounded by an oval, highly decorated border. This border is smooth in *c* and *d*, both of which were obtained in Utuado, Porto Rico. In specimen *e*, in which this border is elaborately ornamented but unfortunately very much broken, there is a perforation near the top for suspension, the corresponding hole on the other side having been broken off. The large mouth is surrounded by a raised border representing lips; the eyes are sunken, the eyebrows outlined by incised curved lines. The reverse side of this specimen is flat.[b]

Plate LVI, *a* and *a'*, represents one of the most remarkable stone objects in the collection purchased from Señor Neumann. This unique specimen was evidently intended to represent a bird, the head,

[a] Padre Joseph Gumilla, El Orinoco, Ilustrado y Definido, Historia Natural, Civil y Geográfica de este Gran Rio, y de sus Caudalosas Vertientes, Govierno, Usos y Costumbres de los Indios, sus habitadores con nuevas y útiles noticias de Animales, Arboles, Frutos, Aceytes, Resinas, Yervas, y Raices medicinales: y sobre todo, se hallaran conversiones muy singulares a Nuestra Santa Fé, y casos de mucha edificación, 2 vol., Madrid, 1745.

[b] A remarkable disk with face on one side was received while this article was going through the press. It is made of the semifossil shell of a sea urchin, the face being cut on the actinal region.

beak, wings, and tail all being well made. Seen from one side the head is globular, with a depression in place of the eye and an elongated straight beak like that of a duck. The legs are brought forward to the top of the beak, leaving a triangular opening between the lower side of the beak, the head, the breast, and the legs. Seen from the front (*a'*), there appear on the top of the head a median groove and incised lines which extend to the upper portion of the plane surface. The wings are raised areas with pits near the border, the tail being indicated by two projections or knobs on the posterior extremity of the body. The use of this object is enigmatical, but it may have been attached to a stick and carried in procession or set up on graves during mortuary ceremonies.

Specimen *b* is a bird-like amulet from Trinidad, British West Indies, where it was purchased by the author in 1904. It is made of soft soapstone or serpentine, highly polished, and is incised on both sides. The significance of this unique object is unknown, but it may be regarded as an amulet of unusual form.

Viewed in the position in which it appears on the plate, the upper part has the form of a bird's head, the beak resembling that of a parrot, the round part with a depression being the eye cavity. The perforation would, according to this interpretation, indicate the upper part of the body, the incised figure the wings. The meaning of the globular body on the lower end of the object is incomprehensible under this interpretation, unless we regard it as the head of another animal, possibly that of a smaller bird. It has been suggested also that the figure represents a scorpion, the part that has been regarded as the head of a bird being the sting at the end of the tail. There are objections to this interpretation, for the object was evidently suspended at the perforation, and one side is flat, as if worn next the body or forehead. This object should be classed as an amulet rather than as an idol, being connected with the "Stone amulets" group immediately to be considered.

Stone Amulets

Among the objects used by the Antilleans in their worship there were none that surpassed in technic the small stone images to which Professor Mason gave the name amulet. Four figures of these amulets with accompanying descriptions occur in his catalogue of the Latimer collection. The author here considers amulets of stone, used either as personal fetishes or charms, and will describe later under carvings of these materials those made of shell or bone.

The following account taken from the author's article[a] on Porto Rican and other West Indian amulets may give an idea of their general forms.

[a] *American Anthropologist*, n. s., v, no. 4, 1903. The references to plates in this article are changed to conform with those in the present report.

In all large collections of prehistoric objects from the West Indies there occur small images carved from stone, shell, and bone, perforated for suspension from the person. Although many of these fetishes or amulets are known, few have been described or figured, and there is little recorded information as to their various forms. The first-known figures of West Indian prehistoric amulets appear on a map of Santo Domingo, dated 1731, published by Charlevoix.[a] This map bears under the figures the legend "Figures superstitieuses de Zémi ou Mabouya de la façon anciens insulaires," showing that the religious character of the objects was early recognized. The suggestion that *zemis* were tied to the forehead was first made by Professor Mason.

Among other figures of Dominican amulets are those of Antonio del Monte y Tejada, published in his Historia de Santo Domingo, 1853. Two of these represent frogs; four others are the same as those figured in this article.

In a German translation of the author's address on Prehistoric Porto Rico, delivered before Section H of the American Association for the Advancement of Science, the editor of *Globus* has introduced (no. 18 and 19, 1902) fine figures of two amulets from Gonaives island, near Haiti.

The first figures of Porto Rican amulets known to the present author are those published in 1877 by Mason.[b] Three of the four figures given by him undoubtedly represent amulets, but the fourth, called a "lizard-shaped amulet" on account of a network of lines on the body, supposed to indicate scales, shows no head, thus rendering exact identification impossible.

So far as known, Mason was also the first American writer to identify the perforated figures as amulets, adding to his descriptions of them the significant statement that "the inhabitants of Hispaniola, on the authority of Friar Ramon Pane (Irving's Columbus, I, 390), had small images of their gods which they bound about their foreheads when they went to battle." He points out also that the inhabitants of the Lesser Antilles likewise used amulets, and thus refers to one of these objects in the Guesde collection: "The principal amulet is of carbonate of lime in bladed crystallization. It represents a *mabouya* (evil spirit) with bended arms and legs and the virile organ

[a] Histoire de l'Isle Espagnole ou de S. Domingue, Paris, 1730. In his preface Charlevoix states that he obtained the manuscript of this work with permission to publish it from the author, Jean Baptiste le Pers. Mr H. Ling Roth says that, according to Margry, Le Pers repudiated Charlevoix's publication. The second volume of Charlevoix's work is dated 1731, the year borne by the map in the first volume. Three figures of *zemis* are given on this map, one of which belongs to the first type, those of human form. It is more difficult to identify the others, especially the one said to have been found in an Indian burial mound. Its general form resembles that of a three-pointed idol, but as no profile of the conical projection characteristic of this form is given the identification is doubtful.

[b] Latimer collection of antiquities from Porto Rico, in the National Museum at Washington, D. C. *Smithsonian Report* for 1876.

in a state of action. The shoulders are pierced posteriorly to allow of the suspension of the amulet."

Dr J. E. Duerden[a] thus writes of amulets from Jamaica:

> In 1879 Mr C. P. O'R. de Montagnac discovered two small stone images on some recently disturbed ground at Rennock Lodge, situated on a small plateau at a height of about 400 feet up the Long mountain. They were associated with accumulations of marine shells and fragments of pottery, such as are met with on the top of the hill at Weireka. The larger is a neatly carved representation of a human head and neck, and is perforated behind for suspension. It is 2¾ inches long and 1⅝ inches from ear to ear; the body below the neck has been broken off. The material is a soft crystalline limestone, scratching readily with a knife, and forms a marble of a grayish or slightly greenish color, such as is found in various parts of the island, especially at the eastern end. The upper part of the head bears some resemblance to that figured in Stephen's Flint Chips (p. 227, fig. 6), occurring on the top of a carved stone pestle found in Haiti. The nose, chin, eyes, and ears are clearly distinguished; the perforation is one-fourth inch in diameter and extends for 1¼ inches through the upper part of the neck.
>
> The smaller object is 1¼ inches long, and is likewise incomplete below. Though made of the same kind of stone, the figure is of a different shape, the facial characters not being well pronounced. It is broken at the sides, but there is a suggestion that arms were represented raised high as the shoulders, such as is shown in the Latimer collection, figure 32 . . . These two objects, so far as the Museum collections show, are the only ones belonging to this group of aboriginal relics hitherto found in Jamaica, though . . . somewhat similar examples are known from other parts of the West Indies.

Duerden follows Mason in regarding these objects as frontal amulets and quotes Peter Martyr's reference to the small idols which the natives tied to their foreheads. "They were probably worn," writes Duerden, "or carried about the person and intended to act as charms or preservatives against evil or mischief."

Many pre-Columbian amulets were seen in Santo Domingo and Porto Rico during the author's recent visit, several of which differ from any of those figured by the writers quoted above. Although this article is written more especially to describe these new and unusual forms, others are included which closely resemble the amulets already considered by those authors. Some of the perforated fetishes or amulets of the Antilleans had human or animal shapes; others were stones of unusual forms, not yet identified. With the limited material available it would be premature to claim more than a provisional classification of West Indian amulets at the present time, but of those having human form there are two types which are readily recognized. In addition to these two types there are other forms representing animals, as frogs, reptiles, and birds.

The first of the two types is characterized by the arms and hands being raised to the ears or above the head. This unusual attitude occurs also in relief images on the rims of earthenware vessels and in

[a] Aboriginal Indian Remains in Jamaica. *Journal of the Institute of Jamaica*, II, no. 4, p. 44, July, 1897.

some of those which decorate the ends of stone pestle handles. Possibly the hands were represented in this unnatural position to suggest the attitude of a burden-bearing god or goddess, whose personator in ceremonies supported a bundle on the head or back in this way. The attitude recalls an idol of the Calchaqui of Argentina, figured by Ambrosetti,[a] which he is inclined to identify as that of an earth goddess. The sex of the majority of amulets in human shape from Santo Domingo is not generally represented, but one specimen was undoubtedly intended for a male.

Amulets with arms raised above or at the sides of the head are not always figures of human beings, for in some instances these fetishes have bodies of animals, with heads more or less anthropomorphic. This characteristic position of the arms is nevertheless a good feature to use in a provisional classification of fetishes of the human form.

The general form and appearance of these amulets are figured in plate LVII, *c* and *d*, showing specimens from Porto Rico, from the side and the anterior end. The specimen designated *d* and *d'* is one of the largest of these yet found in the island, resembling, when seen from the side (*d*), a crouching animal, the head being somewhat elevated. The base, or the lower side on which the object rests, is the back of the animal and the upper part the breast and the abdomen. The fore legs are raised above the head in specimens hitherto mentioned. Holes by which the object was suspended are situated below these appendages. Specimen *b* is smaller than that designated *a*, but has the same general form, its head being somewhat larger than the other in proportion to the size of the body.

The first type of amulets is represented in the author's Porto Rican collection by a specimen of which three views are shown in plate LVII, *a* to *a''*. This object, which closely resembles that represented in Mason's figure 32, was purchased from Señor Benito Fernandez, of Luquillo, together with many other specimens of aboriginal manufacture from eastern Porto Rico. This smoothly polished amulet is made of light green stone mottled with black. It measures 2 inches in length and a little less than 1 inch across the shoulders and hips. Seen from the front, the head seems to rise directly from the chest, but from the side the neck is seen to be a mere constriction. The nose and chin are prominent, but the eyes and mouth are only obscurely indicated; there are incised horizontal lines across the forehead; the arms are raised and scratches representing fingers appear at the sides of the head in the normal place of the shoulders. The legs are contracted, giving the figure a squatting attitude, and the toes are indicated by markings. The virile organ is prominent. Two perforations for suspension are

[a] There are many resemblances between Arawak prehistoric objects and those of the Calchaqui of Argentina. These likenesses, like those of the Pueblos to the Calchaqui, are interesting coincidences of independent origins.

drilled at the edges of the shoulders and a depression marks the middle line of the back.

There are three amulets of this kind in the Latimer collection, one of which is figured by Mason. These specimens came from Porto Rico and it is probable that an amulet in the Guesde collection, from Guadeloupe, to which he refers, belongs to the same type. There are other amulets of this form in the Nazario collection.

The writer has not found an amulet like the last in the collections from Santo Domingo, and it is believed that the form is distinctly characteristic of Porto Rico; but, as the natives of the two islands frequently passed from one island to the other in pre-Columbian times, it is possible that this particular form sooner or later will be found in the former island. The failure to find this form of amulet in Cuba, Santo Domingo, or Jamaica, its existence in numbers in Porto Rico, where there was considerable Carib blood, and a record of it from the Lesser Antilles, which at the time of Columbus were occupied by Carib, make it possible that this form of amulet is Carib rather than Arawak.[a]

A smaller amulet of white stone, plate LVII, *c* and *c'*, also purchased from the archbishop, has a well-formed head, with forehead flattened after the Antillean custom. The arms and fingers are indicated by lines, not by relief work; the legs are divided merely by a median line, and a few indistinct scratches represent the toes; the back is smooth and slightly rounded. The perforation extends completely through the amulet from side to side below the ears, having been drilled from each side until the holes met, but the union is not perfect.

A very rare form of amulet, representing twin figures united at the sides, plate LVIII, *b*, was purchased from Archbishop Meriño, of Santo Domingo.[b] The face, eyes, nose, and mouth of each of the two component images are well made, but there are only two ears instead of four. The fingers are indicated by incised markings on the abdomen, showing that the specimen belongs to the second type of amulets, representing human forms. Although imperfectly indicated, the lower extremities bear marks representing bands with which, according to early writers, the Carib were accustomed to bind the calves of their legs. There are two drilled perforations, one at the outer edge of each component figure. This amulet is similar in size and form to an "amuleto para amor" from Argentina, described and figured by Ambrosetti.[c] Although this author does not give the locality from which the twin amulet noted by him was brought, it probably came, like others he describes, from the Calchaqui region. His identification of

[a] Notas de Arqueología Calchaqui, fig. 23, *a* to *d*, Buenos Ayres, 1899. While the art products of the Antilleans are sui generis, they are more characteristic of the Arawak than of the Carib people of South America. Antillean art was comparatively pure Arawak in Cuba and Santo Domingo, but in the Lesser Antilles it was mixed with Carib.

[b] See *Smithsonian Miscellaneous Collections*, XLV, pl. XXXIII, Washington, 1903.

[c] Notas de Arqueología Calchaqui, p. 33, Buenos Ayres, 1899.

twin amulets as representations of the Inca god Huacanqui, or Cayam Carumi, is supported by a quotation from Montesinos[a] to the effect that the idol, or guaca, of lovers was "una piedra ó blanca, ó negra, ó parda [*sic*], que hacen apariencias de dos personas que se abrazan" ("a white, black, or gray stone that has the appearance of two persons who are embracing"). Although it closely resembles the Calchaqui specimen, there is no reason to suppose that the twin amulet from Santo Domingo bears any relation to the Incan idol.

In addition to the two types of amulets in human form above considered, there occur in West Indian collections small perforated images of animals, including birds, reptiles, and frogs.[b]

An amulet from Santo Domingo, of polished dark-brown stone, purchased from Archbishop Meriño, is shown in plate LVIII, *c*. The head is comparatively well cut but the body and the limbs are more obscure. The back is flat and holes for suspension are drilled at the edges.

One of the finest amulets of this type or, in fact, of any kind, is owned by Mr Edward Hall, director of the railroad from Puerta Plata to Santiago, Santo Domingo. This beautiful amulet (plate LIX, *a*, *a'*) is made of white stone and measures 1½ inches in length. Viewed from the front it will be noticed that the arms are raised above the head, that the legs are retracted, and that the knees project on each side. The body is small, hardly equal in length to the face. A side view (*a'*) shows that the head rises from the chest and that the body is perforated from one side to the other. This specimen is said once to have belonged to a cacique and to have been found near the headwaters of the Yaque river, which flows through the Vega Real.[c]

There is in the Hall collection another amulet of the same type (*b*), found in Guanabina, Santiago. When seen from the side (*b'*), the head apparently projects directly from the chest, as in the specimen last mentioned. The specimen is light brown in color and is little more than an inch in length. The front view shows that the shoulders are raised to the side of the head (a position necessitated by the position of the latter), but the hands do not extend above the head. The legs are contracted as in the last specimen and the toes point sidewise. The back of the specimen (*b''*) is flat, with an elliptical depression at the level of the eyes. The lateral perforations which served for suspension open into this cavity.

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[a] Memorias Antiguas Historiales del Peru.

[b] It is difficult to tell whether some of these objects represent human beings or animals. For example, the body of the amulet shown in plate LVII, *d*, *d'*, has a distinctly human form, but the head is that of an animal. Mason's figure of the same specimen shows obscurely drawn arms on the side of the body, but there is no indication of such on the specimen itself.

[c] The figures on plate LIX are copies of the author's drawings of specimens owned by Señor Ramon Imbert and Mr Edward Hall. He takes this opportunity to thank these gentlemen for permission to publish the drawings.

Another amulet of the same type (*c* and *c'*) is also found in the Hall collection. The figure of this specimen has the hands raised above the head and the knees brought together in front.

A similar position of the legs appears in the specimen figured as *d*, *d'*, in which no arms are represented. The head is cut at the end of the body and not on one side. This object, also from the Hall collection, measures 2 inches in length and is perforated through the back.

The amulet represented in plate LIX, *i* and *j*, also belongs to the first type. This object is shown in Mason's figure 33, but that figure is misleading because the artist has placed a forearm on the side of the body instead of above the head. It is uncertain whether this amulet was intended to represent a human being or an animal. (Compare the specimens shown in *h* and *i*.)

The second type of West Indian amulets of human form has the head placed normally on the body, so that the shoulders are brought into their proper position, the arms being represented on the chest, abdomen, or knees, or in front of the body. In this type the legs are brought together in such a way, and the knees, and in some cases the extremities, are so imperfectly carved that in this region the amulet resembles a mummy. As shown in the illustrations, there is considerable variation in the forms of the amulets included in this type.

A good specimen of the second type in the Imbert collection (*e* and *e'*) was found at Yasica. It is made of light-brown stone and measures 2½ inches in length. The face is carved slightly in relief; the eyes consist of two dots inclosed in a figure of dumb-bell shape, while the teeth are simply scratched on the convex surface. The fingers are indicated by parallel marks, the legs and toes being made in a somewhat similar way. A side view of the amulet (*e'*) shows perforations at the level of the mouth. The head and body are not differentiated, the backs of both being simply rounded.

Another amulet (*f*) of the same type, from the Imbert collection, was found in Janico by Señor José Tolentino. It is made of white stone and measures 3¼ inches in length. The eyes are inclosed by an incised dumb-bell figure, the mouth, teeth, and cheeks being indicated by incised lines. No relief work is attempted in representing the arms and the fingers are mere parallel marks near a pit surrounded by a circle, intended for the umbilicus. The legs are comparatively large;[a] no toes are represented.

Another amulet, *g*, *g'*, in the Imbert collection, made of white stone

[a] In describing a most instructive effigy vase from Santo Domingo, Pinart comments on the large size of the legs as follows: "Ceci est curieux au plus haut degré, car ces signes sont ceux très caractéristiques de l'éléphantiasis si commun dans les Indes." Although the abnormal size of the legs is marked in the effigy vase which Pinart figures, as well as in a similar specimen of which the author of this paper has photographs, it is questionable whether the maker of either specimen intended to represent a person afflicted with elephantiasis.

and found at Ysabela by Señor Luis Passailaique, measures 3½ inches long and has arms represented at the sides of the body, the fingers being indicated by incised lines. The back is slightly concave and the face is cut in low relief. Perforations, intended like the others for suspension of the object, are situated on the back on each edge at the level of the mouth. Leg bands are indicated by lateral wart-like elevations near the position of the knees and the toes are faintly marked.

The specimen figured as *h*, *h'*, *h''* represents a shell amulet in the Imbert collection, which also was obtained at Ysabela by Señor Passailaique. It is about 2¼ inches in length and is well polished and carved. The image is in a squatting posture, the knees being brought together and the body resting on the toes. The head bears carvings supposed to represent feathers; the eye sockets and mouth are deep; the teeth are well indicated; the left ear is broken and the right ear entirely gone; the arms are closely pressed to the sides of the body, and the closed hands are raised to the chest, the palms facing outward. The shoulders, knees, and feet are continued as raised bands across the back of the amulet. The perforation for suspension is situated on a level with the mouth.

The only amulet of bird form here figured, plate LIX, *i*, *i'*, *i''*, although other specimens are known to the author, belongs to Mr Hall, of Puerto Plata, who has mounted the object as a watch-chain ornament. This specimen is finely made of dark-brown or horn-colored stone, and measures an inch and a quarter in length. The beak is prominent, the wings are drawn to the breast, and the tail is marked with parallel lines indicating feathers. The perforation extends completely through the body at the level of the neck.

Another animal-shaped amulet, plate LIX, *j*, *j'*, *j''*, also owned by Mr Hall, is made of green stone; it is 2 inches long and is said to have been found in the Sierra del Serra, south of Santiago de los Caballeros. It is difficult in this specimen to recognize limbs, although the two appendages midway in its length may have been designed to represent flippers or fins. The two pits on one side were evidently intended for eyes. The general form of this amulet suggests an animal and it may have been intended to represent a manatee.

Mention may here be made of two beautiful and unique amulets, one of shell and the other of bone, which were purchased in Santo Domingo from Archbishop Meriño.[a] The latter specimen is a complete image of human shape, while that made of shell is nondescript, having a highly conventionalized body without limbs and a realistically carved head.

It was the author's good fortune to see in private collections many amulets different in form from those here described and figured, an

[a] See the author's Preliminary Report, in *Smithsonian Miscellaneous Collections*, XLV, pl. XLVIII, 1903.

account of which would increase our knowledge of the variety of amulet forms from the West Indies. Among these may be mentioned two frog-shaped amulets of black stone in the excellent Nazario collection at Guayanilla, near Ponce, P. R.

While it is possible that some of the amulets above described may not have been bound to the foreheads of the natives, it is at least probable, as indicated by the perforations, that they were attached to or suspended from some part of the head or body. It is known that caciques wore on their breasts gold ornaments called *guanin*, since the custom is mentioned in an account of a battle with the Indians, when Ponce shot a cacique (supposed to have been Aguebana the Second) thus adorned. As none of these gold objects escaped the rapacity of the early conquerors, and as no detailed description of them is known, it is impossible to say whether they were amulets as well as insignia of rank.

There is a striking similarity between some of the West Indian amulets and those found in Mexico. As a rule those from the Antilles are not so characteristic in shape and are not so well made as those from Central America. We should expect to find a wider distribution of these small objects than of the larger idols from the fact that they are more easily transported; but this distribution is not necessarily indicative of racial kinship of the owners of these objects. The similarity between Antillean and South American amulets is marked, but I find no resemblance between those from Porto Rico and those from the mainland north of Mexico.

The objects described in the preceding pages are supposed to be identical with the small idols called *zemis* by early writers, who declare that the natives bound them to their foreheads when they went to war. A reference to Ramon Pane's statement that the islanders wore *zemis* in this manner has already been made (page 42). Peter Martyr[a] describes certain idols used by the people of Hispaniola in their worship, which were undoubtedly amulets. He says: "These images the inhabitantes call *zemis*, whereof the leaste, made to the likenesse of young devilles, they bind to their foreheads when they goe to the warres against their enemies." Francisco Lopez de Gómara,[b] in describing the customs of the Indians of Hispaniola, says: "Atanse á la frente idolos chiquitos quando quieren pelear." ("They bind little idols to their foreheads when they wish to fight.") Similar statements made by other writers in the earlier half of the sixteenth century are frequently quoted in more modern works.

The difference in the forms of these amulets might be supposed to have been due to the desire to indicate by them the clans of the wearers were it not for the fact that the images are so small and consequently inconspicuous that they would have been useless for such a

[a] Decade I, lib. IX, p. 50–54. [b] Historia de las Indias, p. 24, Antwerp, 1554.

purpose; but it is quite probable that the custom of painting the *zemi*, or totem, on the body was practised with this intention.[a]

It is much more probable that the frontal amulets were regarded as efficacious against occult evil influences, the owner relying for protection on their magic power, in the possession of which they resemble all amulets. Their attachment to the forehead naturally suggests the phylacteries of the Jews.

It is probable that, in addition to the amulets which the Carib and the other Antilleans bound on their foreheads when they went to war, these people had numerous amulets, some of which were worn on the neck or on other parts of the body or limbs. Those here considered have the form of small idols and were designed for pendants, but the aborigines had other objects also which were not suspended from the body, although likewise used as protective charms.[b]

Ramon Pane has given a full account of the usages of the medicine men, or *boii*, of the islanders, which is interesting in this connection. From his description, which accords in general with primitive medicinal practices among other tribes, that portion bearing directly on the way in which a stone object, later used as a fetish, was presumably taken from the patient is here given:[c]

> The boii, *buhuitihu*, having purged himself and taken his own drug [a custom not recommended to the modern physician] rises and goes to the sick man, . . . takes him by the legs, feels his thighs, descending by degrees to his feet, then draws hard as if he would pull something off; then he goes to the door, shuts it, and says: "Begone to the mountain or to the sea or whither thou wilt," and, giving a blast as if he blowed something away, turns about, clasps his hands together, shuts his mouth, his hands quaking as if he were a-cold, he blows on his hands, and then draws in his blast as if sucking the marrow of a bone, sucks the man's neck, stomach, shoulders, jaws, breast, belly, and several other parts of his body. This done, they begin to cough and make faces, as if they had eaten some bitter thing, and the doctor pulls out what we have said he put into his mouth at home or by the way, whether stone, flesh, or bone, as above. If it is anything eatable he says to the sick man, "Take notice you have eaten something that has caused this distemper; see how I have taken it out of your body. For your Cemis had put it into you because you did not pray to him or build him some temple or give him some of your goods." If it be a stone, he says, "Keep it safe." Sometimes they take it for certain that these stones are good and help women in labour, wherefore they keep them very carefully wrapped up in cotton, putting them into little baskets, giving them such as they themselves eat, and the same they do to the *Cemis* they have in their houses.[d]

The forms of these amulets vary somewhat in different islands; those from the southern members of the Lesser Antilles differ especially from

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[a] The author was told that the country people at Boya, the old pueblo in Santo Dom'ngo where the Indians under Henriquillo were settled, "sometimes paint designs on their faces in red as the Indians used to do."

[b] Im Thurn speaks of the natives of Guiana carrying worn stones to which they ascribe occult powers. There are innumerable other instances of this general custom among various races which may be explained on the theory of a belief in their efficacy against evil influences or practices.

[c] This translation is taken from Churchill's Voyages, p. 572. See also H. Ling Roth, *Journal of the Anthropological Institute of Great Britain*, XVI, 254–255, 1886.

[d] Feeding fetishes and other images is a common practice among primitive idolators, and almost every special student might give instances of the usage among tribes which he has studied. The Hopi, for instance, put food into the mouths of their stone idols.

those found in the northern islands. Trinidad, which is so near the continent of South America that we may regard their aborigines as practically the same in culture, has several amulets of types different from any found in Porto Rico. Plate LVIII, *a*, represents one of these from side and top. The side view shows a figurine of an animal with peccary- or armadillo-like head, four legs, and a short, thick tail. The legs are outlined by incised spirals on the body and have their extremities connected by a flat band having an opening between it and the body of the animal. The holes by which this fetish was suspended are just in front of the legs, one on each side, as in other amulets.

When seen from above, it will be noted that the figure is slightly curved and that two deep grooves extend along the back, inclosing a triangular area reaching from the neck backward as far as the constriction which separates the tail from the body. There are likewise incised parallel lines on the upper part of the tail and curved lines on the top of the head.

PICTOGRAPHS

Not the least significant of the many survivals of a prehistoric race in the West Indies are rude pictures cut in rocks and called "pictographs" or "petroglyphs."[a] A study of their forms, geographical distribution, and meaning is an important aid to our knowledge of the origin and development of Antillean culture; it affords valuable data bearing on the migration of the race and points the way back to its ancestral continental home. Although there exists considerable literature on the pictography of the Lesser Antilles, the Bahamas, Jamaica,[b] and Porto Rico, little has yet been published on that of Cuba and Santo Domingo. The last-named islands were thickly settled at the time of their discovery, and we should expect to find in them many pictographic evidences of prehistoric occupancy.[c] Continued research will undoubtedly make them known to anthropologists.

The most important contribution to the pictography of Porto Rico is by A. L. Pinart,[d] whose pamphlet, although rare, is accessible in

[a] Mallery (1893) restricts the term "petroglyph" to productions where the picture "is upon a rock either in situ or sufficiently large for inference that the picture was imposed upon it where it was found." Following this restriction the majority of pictures here considered would be called "petroglyphs;" but as this article contains other forms, the author retains the older term "pictograph" for both kinds. See Prehistoric Porto Rican Pictographs, *American Anthropologist*, V, no. 3, July-September, 1902.

[b] J. E. Duerden, Aboriginal Indian Remains in Jamaica. *Journal of the Institute of Jamaica*, II, no. 4, July, 1897.

[c] While in the Dominican Republic the author heard of several pictographs, among others a cluster on the shore of Lake Henriquillo, but he did not inspect them. According to H. Ling Roth (The Aborigines of Hispaniola, *Journal of the Anthropological Institute of Great Britain*, XVI, 264, 1886), "Descourtilz also (Voyage d'un Naturaliste, II, 18-19, Paris, 1808) says rock carvings of grotesque figures are to be found in the caves of Dubeda, Gonaives, in those of Mont Selle, near Port au Prince, and in the Quartier du Dondon, near Cape François (Cape Haitien)."

[d] Note sur les Pétroglyphs et Antiquitiés des Grandes et Petites Antilles, Paris, 1890 (folio facsimile of MS.).

part through extracts published by Mallery.[a] Pinart spent some time in Porto Rico and was the first to point out the pictographs described by him, and he independently rediscovered several others, which he mentions. His pamphlet is an important contribution, although on account of its rarity it has been overlooked by some of our foremost students of the subject.

Among other important contributions to our knowledge of Porto Rican pictography may be mentioned the small pamphlets by Dumont and Krüg,[b] both of whom consider practically the same specimens, having apparently derived their knowledge not from personal inspection but from a manuscript preserved in San Juan. The pictographs which they describe, and of which Krüg gives a full-page plate, are said to be on a rock called Piedra de la Campana ("bell stone")[c] set on two upright rocks in the middle of the Rio Grande de Loisa, not far from the town of Gurabo.

A perusal of these publications induced the author to visit Gurabo, and, although he was not able to find these pictographs, he was rewarded by the sight of a bowlder, also poised on two upright rocks, situated in the Loisa river halfway between Caguas and Gurabo. This stone, locally known as the Cabeza de los Indios ("head of the Indians"), was found to bear several rude incised figures which were too illegible to be identified.

There are scattered references to the subject of Porto Rican pictography in popular books on the island which have appeared since the American occupancy. These have a value in pointing out otherwise unknown localities in which pictographs may be found. Porto Rico apparently has a larger number of these rock pictures than one would at first suspect, but in a short article attention may be directed to only a few typical forms.[d]

In a general way Porto Rican pictographs fall under the following heads[e] with reference to the localities in which they are found: (1) River pictographs, (2) cave pictographs, and (3) pictographs on the boundary stones of inclosures identified as dance plazas. Of these the

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[a] Picture Writing of the American Indians, *Tenth Report of the Bureau of Ethnology* p. 136, 1893. Since the above lines were written the author has received a copy of this work, which is particularly important as pointing out localities in Porto Rico in which pictographs occur. Pinart mentions these figures from Ciales and from Malloquin at Cabo Rojo. He refers to river pictographs near the mouth of the Cano del Indio, at Ceiba and Rio Blanco, and at the Loma Muñoz, above Rio Arriba, in the Fajado district. The piedra pintada, or painted rock, said to be situated on the road from Cayey to Aibonito, and the rock with pictographs on Don Pedro Parez's farm, near Carolina, are possibly pillar stones. Pinart's illustrations are too imperfect to aid the student in identifications of the pictographs.

[b] L. Krüg, Indianische Alterthümer in Porto Rico, *Zeitschrift für Ethnologie*, Berlin, 1876; Dr D. Enrique Dumont, Investigaciones acerca de las Antiquedades de la Isla de Puerto Rico (Borinquen), Habana, 1876.

[c] It is said to have been used as a bell to call the natives together.

[d] Doctor Stahl, who has published the most complete work on the Porto Rican Indians, appears to have overlooked their pictographs.

[e] The claim that the prehistoric Porto Ricans possessed a form of hieroglyphic writing has not been substantiated. The specimens with characters on them are believed to be forgeries.

first group contains perhaps the best specimens of stone cutting, but those of the third class are in many instances very finely executed. The river pictographs are commonly found in isolated valleys of the high mountains and, as a rule, are cut on hard rocks the surface of which had been worn smooth by the water, presenting conditions quite favorable to good technic. The caves of the island are found only in a soft calcareous formation, the surface of which is never very hard and is seldom smooth. The pictographs in these localities, while more easily cut than those on river bowlders, are more readily effaced by erosion, and are seldom as finely executed as those of the river type. The pictographs found on rocks surrounding dance plazas are, as a rule, finely made and well preserved. In all three types it would appear that greater attention was given by the Antilleans to the technic of pictographic work than by contemporary peoples in North America north of Mexico.

RIVER PICTOGRAPHS

As already said, some of the best specimens of aboriginal Porto Rican pictography were found on bowlders in the rivers or in the vicinity of running water. They often occur on rocks which rise out of the middle of streams or near waterfalls, so that it is not inappropriate to designate this type as river pictographs, to distinguish them from others found in caves or graven on the rude aligned stones which inclose ancient dance plazas. The author's studies of the river pictographs were limited mainly to those of the valley of the Rio Grande de Arecibo, one of the large rivers of the island, which rises in the high mountains south of Adjuntas and flows northward into the Atlantic near the town of Arecibo.

There are many evidences that there was formerly a dense Indian population along the fertile banks of the Rio Grande de Arecibo and its tributaries, and many indications that later this region will yield most instructive discoveries to the archeologist. The town of Utuado, which forms an especially good center for archeological work on the island, is situated in the high mountains nearly directly south of Arecibo, on the right bank of the river, being readily accessible by the fine carriage road connecting Arecibo and Ponce. Its surroundings afford some of the most beautiful and picturesque mountain and river scenery on the entire island. Utuado occupies the angle formed by two rivers, one of which penetrates the isolated district of Jayuya (a most instructive region for the archeologist); the other is the main stream along which extends the road to Adjuntas, and over the high sierras to Ponce. The town is situated in a territory formerly ruled by Guarionex, a cacique who at the conquest of the island is said to have led more than a thousand warriors against Sotomayor. We can still trace in the immediate vicinity of the pueblo several large village

sites and plazas where the Indians assembled for ceremonial and other dances, while near by are found some of the finest examples of pictography known in the island.

Among the many groups of pictographs found in the neighborhood of the town of Utuado one occurs on a river bowlder situated at the southeastern corner of the estate of Señor Roig. One can readily find this bowlder by following the road from Utuado to Adjuntas, passing the Roig farmhouse on the right, and continuing about three miles from the former town. The bowlder lies to the right only a short distance from the road, and is situated conveniently near a dance plaza, which will be presently described. The pictographs, eight or nine in number (plate LX, pt 1), cover the entire upper face of the bowlder, a flat surface about 15 feet above the base.

The pictograph shown in *b* is one of the best on this rock. It is well made and consists of a circular head with two projections or horns on the top, pits for eyes, and an oval mouth connected with the eyes by a line which extends upward midway between them. The oval body contains a median line, with other lines, partly effaced, parallel to one another, probably representing arms.

A second pictograph (*c*), with a horned head, resembles in general shape the one just described. It has a circular mouth connected with the outline of the head. The body has a similar medio-ventral line, with horizontal lines suggesting arms. Eyes are represented by small pits. It will be observed that these two pictographs are in all particulars practically identical in character.

A pictograph (*d*) of another kind, also found on the stone in the middle of the river, consists of two concentric circles, in the inner one of which are pits representing the eyes and mouth. It has a medio-frontal line, bifurcated at the center of the inner circle, and lines radiating from the outer circle,[a] suggesting a solar emblem.

Specimen *e* is directly comparable with that figured as *d;* but, while the latter has the eyes and mouth in the middle of the inner circle, in the former the inner circle contains an elliptical design. On one side this figure (*e*) has a projection which is indistinct on account of a fracture in the surface of the rock, but, as in the preceding pictograph, lines radiate from the outer circle.

An instructive feature of several of these Porto Rican pictographs is the median groove which connects the mouth with the ring groove bounding the face. This anomalous way of drawing the face reappears in certain South American pictographs from Chiriqui,[b] and in one of the figures described by Doctor Seemann we find also the added horns. Whether or not these figures may be rightly interpreted as

[a] See the figure with similar radiating lines, in Stahl's Los Indios Borinqueños, pl. IV, fig. 20.

[b] For McNeil's sketch of the pictographs here referred to, see *Sixth Report of the Bureau of Ethnology*, p. 22, 1888.

cup structures is beyond the scope of this article; but the existence of a connecting groove or line from the mouth to the top of the head, between the eyes, in pictographs from Colombia and Porto Rico is certainly suggestive. This characteristic may be added to the many other likenesses between the prehistoric culture of the Antilles and that of the aborigines of the northern countries of South America.

In *f* is shown a circular figure resting on another, in the former of which we detect eyes, as if it were a head and the intention had been to depict a body and a head with a crown or other ornament. The face shown in *g* has eyes and a nose, but no mouth and no representation of the body. It is well made, and although differing somewhat from the others, is apparently not a new type.

Several smaller pictographs are found near those described, but they are so worn that their forms could not be definitely traced. They are apparently circles with inclosed pits or geometrical figures, one of which suggests the moon.

The circle is a common form of ornament on many different specimens of Antillean handiwork, as pottery, idols, stools, and carved shells. One or two three-pointed idols which the author has collected bear circles cut in low relief or incised on the back or apex. Mason[a] has mentioned the presence of this ornament on pillar stones, and the author is familiar with specimens of those problematic stone rings, popularly called "horse collars," in the ornamentation of which the circle is also used as a decorative motive.

Perhaps one of the best examples of the use of the circle in ornamentation, one which to the mind of the author is highly suggestive, occurs on a rare, possibly unique, specimen of Antillean wood carving seen by him in the city of Puerto Plata, Santo Domingo. This specimen represents a coiled serpent; it was carved from a log of black wood and has a highly polished surface. The details of the head, body, and tail, and especially of the mouth, eyes, and scales on the belly, are natural, being remarkably well represented. Most significant of the noteworthy carvings on this serpent image are the incised circular figure in the middle of the back of the head and the four similar figures on the body. These circles alternate with triangular markings and other incised lines.

The association of these circles with the serpent idol (for as such we must regard this carving), and the interpretation of the circle as a sun symbol, are a suggestive repetition of a world-wide mythological conception of an esoteric connection between sun and serpent worship. In this individual instance, however, it may be no more than a coincidence. The author is much more interested in the fact that the back of the head and body of this wooden serpent effigy is decorated with

[a] The Latimer Collection of Antiquities from Porto Rico in the National Museum at Washington, D. C. *Smithsonian Report*, 1876. Reprinted with pamphlet on Guesde collection, 1899.

circles, from another consideration—the relation of *zemis* and collars to serpent worship. The backs of the heads of several mammiform idols have similar circular figures cut with great care; they sometimes appear also on the surface of the stone collars which are identified as the backs of serpents. It is suggested that these facts, taken with others, reveal the true nature of ring stones and mammiform *zemis*, to the elaboration of which hypothesis a special paper might be devoted.

The pictograph figured as *h* is oval in form, with two pits representing the eyes and a median groove between them. Although this is a rare form, it is on the whole comparable with those previously described.

Two horns on the head of the pictographs recall similar appendages to the heads of figures from the island of Guadeloupe, reproduced in Mason's monograph. The proper interpretation of these appendages is beyond the author's ability, but attention may here be called to the fact that in stone amulets and in burnt-clay figures the Antilleans often represented the fore legs or arms above the head. In such cases, however, hands, fingers, or claws are commonly indicated, but no sign of these appears in the pictographs.

There is a second group of well-preserved river pictographs on a rock in the middle of the stream before mentioned, higher up than those on Señor Roig's farm, near Señor Salvador Ponz's house. These also are readily accessible from the road, being cut on a bowlder just back of the outhouses of the residence. Their situation is such, however, that it is impossible to take good photographs of them. An examination of them shows that they do not differ greatly from those just figured and described, from the bowlder which marks the southeastern corner of the Roig farm. The pictographs of the second group are figured as *i*. They repeat the features already considered, which likewise occur on the walls of caves to be described later. In the upper member there are two spirals facing each other and united. Unlike the other spiral-form pictographs, this figure has a circle between the two terminal spirals. In a lower figure there is a representation of the human face with its mouth connected by a median groove with the top of the head, and above it a circle with radiating lines recalling solar rays. This upper figure would appear to represent a crown [a] drawn out of perspective, and the radiating lines the feathers which were appended to it.

Still ascending the river a few hundred yards beyond the pictographs last recorded, one reaches a beautiful waterfall called El Salto de Merovis, situated about 6 miles from Utuado, where also is found a group of river pictographs, differing somewhat from those

[a] There are frequent references by early writers to crowns with feathers worn by persons of rank, like caciques. Guacanagari gave Columbus one of these objects, which he took to Spain to present to the king and queen.

described. At this point the river plunges over and among great bowlders, resting here and there in deep pools. These smooth, water-worn rocks afford a fitting surface for pictographic work, specimens of which are found scattered over the larger bowlders projecting above the falls and the still water of the pools. Several of these pictures are barely legible; others, although easy to trace, owing to their position are difficult to photograph successfully. One of the forms found near the falls is figured as *j*.

Another pictograph (plate LX, pt 2, *k*) represents a face about a foot in diameter, with three pits for the eyes and mouth. There is no representation of a body nor is there any attempt to depict the ears or other appendages to the head.

Figured as *l* is a circle in which is contained a crescent, suggestive of the moon.

In the same plate (*m*) is a pictograph of the same general type as those already considered, destitute of a mouth, with two circles for eyes, and suggesting the beginnings of spirals.

Specimen *n* has a pyriform face with ear pendants well represented. The eyes are circles with central pupils; the mouth is rudely indicated, and parallel lines extend downward from the chin. This example, which is one of the best at the falls, is found high on the front of a bowlder, the slippery sides of which almost forbid climbing.

Specimen *o* is a long, almost straight, line with a spiral termination at each end. The whole figure measures about a foot and a half, and may be a whirlpool symbol.

Near the last-mentioned pictograph is one (*p*) with eyes, nose, and mouth well represented. Above the mouth appear two crescentic marks, opposite each other, indicating the cheeks. Among numerous other pictographs on these rocks are two circles, each representing a human face with eyes and mouth clearly indicated.

Several pictographs are found on rocks in the river beyond the falls. One of the largest groups occurs near Adjuntas, and there are others between the falls and Utuado.

Some of the most instructive river pictographs in Porto Rico are found at the eastern end of the island. There are many near Fajado, and others are on the Rio Blanco not far from Naguabo. A short distance from Juncos, near the road from Humacoa to that town, there are several river pictographs of the same general character as those described.

The author's attention has been called to a pictograph (plate LXI, *a*) which is a profile sketch of a mammiform *zemi*, or idol with a conical extension on the back. He has seen also a rock etching with a body of zigzag form, recalling lightning. The forms which these pictographs take are almost numberless, but in all there is a common likeness to the

incised decorations found on wooden and stone stools, idols, and other objects undoubtedly of prehistoric manufacture.

The majority of these clusters of river pictographs, especially those along the Rio Grande de Arecibo, occur in the neighborhood of dance plazas, which will be dealt with presently.

CAVE PICTOGRAPHS

Numerous pictographs are found also in the caves, so common in the calcareous rocks of the island. The number of these caverns in Porto Rico is very great, but not all of them contain Indian pictures on their walls. In many cases such pictures may once have existed, gradually being covered by stalactitic deposits on the walls or erased by superficial erosion. As a rule cave pictographs were not cut with the same care as the river pictographs, from which they differ also in size, shape, and apparently in significance. The botryoidal forms taken by many of the stalactites lend themselves to relief carving which clearly is often combined with surface cutting, affording forms intermediate between pictographs, or cuttings on flat surfaces, and sculptures. Many of these cave pictographs are found in places not now readily accessible; others occur on slabs of rock which lie on the cave floor.

The Cueva de las Golondrinas ("cave of the swallows") near Manati, and El Consejo ("the council house") near Arecibo, are typical localities for the study of cave pictography. The walls of the former cave are covered with a sticky, greenish-black substance which had partially concealed some of the pictographs, but others of large size and good workmanship were quite readily seen. The fallen bowlders at the back of the cave also had good pictographs cut upon them. More than ten rock carvings on the walls were counted, and there were others which were undoubtedly obscured by the covering that had been deposited over the walls. The more striking pictographs from this cave are the following:

One, about 8 inches in diameter, incised about breast-high on a rock which had fallen from the roof. A slab of stone bearing this picture was cut out, but on account of its great weight it was not brought away.

Plate LX, pt 2, *q*, represents one of the best of all the pictographs in this cave. It measures about 18 inches in diameter, and was cut on the projecting front of a fallen bowlder, making the face very prominent. The body is represented by parallel lines.

Illustration *r* represents a pictograph about a foot long, consisting of head and body, with legs appearing on each side folded to the body. Like some of the river pictographs near Utuado, it has two horns or anterior appendages, one on each side of the head. This figure recalls the outline of small stone amulets from Porto Rico and Santo Domingo.

The pictograph figured as *s* belongs to a type somewhat different from the preceding, but recalls those on the river rock near Utuado (*e*). The appendages to the side of the head resemble ears. On the top of the head there is a smaller circle with which it is connected by a groove. Eyes and mouth are represented by three rings.

Specimen *t* consists of a rectangular body marked off into squares, having an oval head with ear appendages. There are no indications of eyes, but the cheeks are represented by crescentic grooves.

The three pictures shown in *u* to *w* represent faces, but they have been much eroded and disfigured by time. Originally they were evidently more complicated than their present outline would seem to indicate.

Some fine pictographs are to be seen in the cave called El Consejo,[a] on the estate of Mr Denton, not far from Arecibo. The neighboring hamlet, school, and hacienda bear the name Miraflores. This cave is reached after an hour's ride by coach to Byadera, and thence by horse for another hour and by climbing up the mountain to the entrance, which is quite easily accessible. The cave is spacious, roughly dome shaped, and lighted at the end opposite the entrance by a large arched opening, which looks out on the steep mountain side. This opening was, in all probability, the original Indian entrance, for all the carvings are placed near that end, as if to decorate it or to be conspicuously in view as one entered the cave. There are seven faces or heads, all close together and all on one side of the archway. One of these pictographs is especially conspicuous; it is well made, partly in relief, with what appear to be head, nose, and pointed chin. The other six faces are simpler, consisting of pits arranged in triangles, sometimes surrounded by a line to indicate the face. Of these, two faces are cut on rounded protuberances and four are merely incised in the flat rocks. One of these, called by a peon "el díos mejor de todos," has the eyes cut obliquely, sloping from the nose upward. Similar oblique eyes may be noted on many pottery heads, one of the best of which was collected by the author near Santiago de los Caballeros in Santo Domingo.[b]

As the name "el díos" implies, there survives in the minds of the Gibaros, or country people of Porto Rico, a belief that these pictographs were intended to represent Indian gods. Of the same import also is the lore among these people concerning caves, which in part at least is a survival of the reverence with which caverns were regarded in aboriginal life. Stories that caves are the abode of spirits are widely current among the unlettered people of Porto Rico and Santo Domingo. According to a superstition which prevails among many of the West Indian islanders, some of these caves are still inhabited. It is said

[a] Miss A. B. Gould has kindly given me these interesting notes of her visit to this cave.

[b] One of the *zemis* figured by Charlevoix in 1731 (Histoire de l'Isle Espagnole ou de S. Domingue, I, 61) has oblique eyes.

that if objects are placed at their entrances they are removed within a short time by troglodytes, and débris at the cave mouth is said to be swept away in a manner otherwise inexplicable. I was told by a man who owns one of the finest wooden stools in Santo Domingo that he obtained it from a Gibaro who said that while hunting a goat in the mountains he strayed into a cave which had not been entered in modern times. Penetrating an inner chamber he saw in the dim light what he supposed to be one of these cave-dwellers. He struck at it with his machete and fled, but afterward returned to find that the object of his fear was a wooden stool, which he removed and sold. As if to corroborate the story of this "paisano" (countryman), the object, which is hideous enough in form and feature to frighten anyone if encountered in the gloomy environment of a cave, still shows the marks of the machete. A wooden stool or *duho* in the Smithsonian collection described by Mason, alleged to be from Turks island, is said to be hacked "by the hatchet of a vandal." Perhaps the mutilation was due to fear rather than to malice.

Near the hacienda Barranca, not far from the military road of Porto Rico from Ponce to Juana Diaz, there are some instructive pictographs, the situation of which is peculiar. On the side of the cliff overlooking the river are numerous small caves, some of which are mere niches in the rock. One of these is barely large enough to admit the human body, but by lying at full length one may force his head and shoulders through the entrance into an enlarged space inclosed by rock walls. Upon the surface of this rock there are several pictographs, the most striking of which are here reproduced on plate LXI, *a–e*. Some of these rock etchings appear to have been pecked into the rock surface and then filled with pigment or earth of a color different from that of the rock. Others are single pictographs. Their sides average from 6 to 18 inches in length.

Specimen *a* has a triangular form, reminding one of the profile of a three-pointed stone idol. In *b* we have a representation of the head and part of the body of a human being, the eyes and mouth being readily recognized. Above the head there is a crescent-shaped body crossed by a series of lines incised slightly in the rock surface. This individual pictograph is situated on the right-hand wall.

The form figured as *c* was undoubtedly intended to represent the human face, the eyes, mouth, and cheeks being well represented. In *d* is represented a pictograph found in a neighboring cave or shrine. This likewise represents a human face, but has a nose which appears as a groove from the top, imparting a heart-shaped outline to the whole. There is also a representation of an appendage to the side of the head, but the nature of this is not clear from the pictograph.

Several very good pictographs occur in faces of the granite near the falls of the Rio Blanco, Humacoa, Porto Rico. Of these Mr L. M.

McCormick, curator of the Museum of Natural History at Glen island, New Rochelle, N. Y., has sent the Smithsonian Institution a few kodak photographs, from which the following are copied. They contain no new type, but come from new localities.

Plate LXI, *g*, represents the head and body of some totem, the former with eyes, mouth, and prominent ears. This pictograph has an object of some kind represented above the head. The square body bears a cross, the arms of which extend to the four corners. Specimen *f*

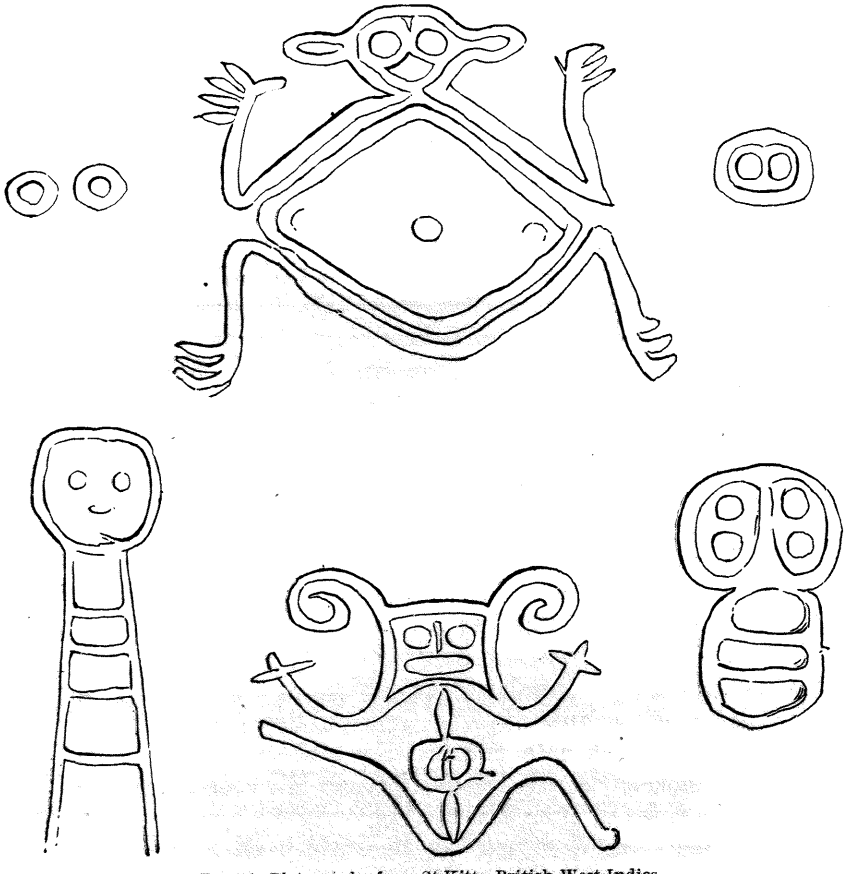

FIG. 24. Pictographs from St Kitts, British West Indies.

is different from most pictographs in having the eyes in relief in sunken cavities. A number of parallel or radiating lines arise from the chin and lower side of the head. Similar lines occur in other pictographs and are found likewise on certain pillar stones. Specimen *e* is not a distinctive form of pictograph, but is worthy of note on account of the singular form of the body and the median groove down the front.

Copies of pictographs from St. Kitts are figured on the accompanying cut (figure 24).

True Carib pictographs from St Vincent are figured on plate LXII. The resemblances to pictographs from Porto Rico are very great, especially in the case of those shown in *b*.

Stone Collars

No archeological objects found in Porto Rico have attracted more attention and are more characteristic of the island[a] than those rings made of stone that from their shapes are called collars or horse collars. Although several have been found in Santo Domingo and in the Lesser Antilles, the number collected in Porto Rico far exceeds that from all the other West Indies. There are in the United States some sixty of these objects, about evenly distributed between the collections in Washington and New York. Several are in European museums, in the Blackmore and Christy collections in England, and in the public museums of Paris, Berlin, Stockholm, Copenhagen, and other cities. It has been estimated that there are about one hundred Porto Rican collars the ownership of which is known.

While these objects, as a rule, have the collar shape several are simply stone rings, roughly formed, as if unfinished specimens, and others are simply stones with a round or oval perforation. Their size is far from uniform, but their shape is almost without exception oval. The kinds of rock of which they are are made differ, as does the technic of the specimens. Some of the collars show undoubted signs of pecking, but as a rule the surface of the completed form shows that they were polished by rubbing. They rank among the finest specimens of stoneworking by the Indians of America.

Professor Mason classifies these stone rings in two groups, (1) the massive and (2) the slender oblique oval.[b] Those of the latter group are as a rule the better made, being sometimes highly ornamented, with ornamentation limited to the pointed pole. The massive collars bear superficial decorations that are unlike the designs on the slender oblique oval. The following observations on the classification of stone collars were published in the author's article on Porto Rican Stone Collars and Tripointed Idols:

> Professor Mason distinguishes two classes of stone collars, which he calls "the massive oval and the slender oblique ovate or pear shaped." "The latter," he says, "are far more highly polished and ornamented than the former, and some of the ornamental patterns on the massive forms are reproduced but more elaborated on the slender variety, notably the gourd-shaped ridge surrounding the panels.
>
> Collars of both classes are subdivided by the same author into two groups, (*a*) the right-shouldered and (*b*) the left-shouldered collars, which may be distinguished as

[a] See D. G. Brinton, On a Petroglyph from the Island of St Vincent. *Proceedings of the Academy of Natural Science*, Philadelphia, 1889. The specimens said to have been found in Scotland by Daniel Wilson, as was pointed out by Stevens, are probably West Indian.

[b] The Latimer Collection of Antiquities from Porto Rico in the National Museum, and the Guesde Collection of Antiquities in Pointe-a-Pitre, Guadeloupe, West Indies; reprint, p. 385, 1899. These articles originally appeared in the *Smithsonian Reports* for 1876 and 1884, respectively All references to Professor Mason are to this reprint.

follows: If we imagine the collar placed over the neck, with its smooth edge resting on the chest and the pointed pole hanging downward, the collar may be called left-shouldered when the projection "faintly resembling a lashing of the two ends of a hoop" is on the wearer's left side and the decorated panel on the right. When, however, these portions have reversed positions, the collar is called right-shouldered. Certain of the massive collars have no superficial decoration, but are simply perforated stones, possibly unfinished specimens.

The general character of the two groups of stone collars, massive and slender oblique ovate, differs to such an extent that it would seem as if their uses were not the same, and the differences in the symbolic markings on their surfaces would imply a different interpretation of their meaning. For instance, while the theory that these collars were worn over the neck applies fairly well to the slender ovate variety, it fails to apply to some of the massive forms. Although the latter might be regarded as instruments of torture or symbols of servitude, this interpretation would hardly hold for the slender examples. On the other hand, it can not be reasonably claimed that the use and meaning of the two groups were different, considering the similarity in their general forms; nor is it probable that the massive forms are unfinished specimens of the slender ones, inasmuch as the special superficial symbolic characters of each group are too well defined to suppose that one could be made out of the other.

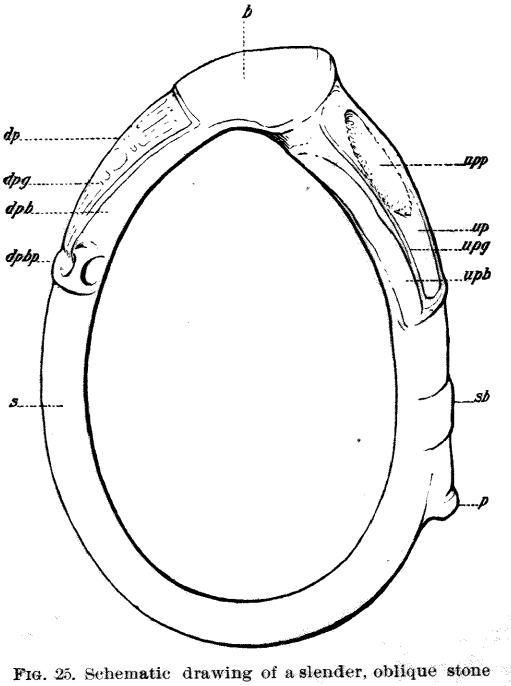

FIG. 25. Schematic drawing of a slender, oblique stone collar.

There are certain regions of both the massive and the slender collars which can readily be identified and which for convenience have been designated by the following names (figure 25): *b*, boss; *p*, projection; *s*, shoulder; *sb*, shoulder ridge; *dp*, decorated panel; *dpb*, decorated panel border; *dpg*, decorated panel ridge; *dpbp*, decorated panel border perforation; *up*, undecorated panel; *upp*, undecorated panel pit; *upb*, undecorated panel border; *upg*, undecorated panel groove. These regions are in reverse positions in right- and left-handed collars and vary in form according to the simple or elaborate character of the ornamentation.

b. Boss.—The so-called boss is a rounded, generally unpolished, prominence or swelling, well marked in slender but absent in massive collars, being generally either plain or so decorated that it separates the two panels.

In massive forms the boss is confluent with the undecorated panels, but in the slender it is evidently a continuation of the decorative panel.

p. Projection.—The projection, which is a significant feature of the collar, has the form of a slight, rounded elevation, closely appressed to the body of the collar, to which it appears to be bound by an encircling ridge or fillet. In massive collars there are generally two protuberances which may be called projections, one on each

side of the ridge; but in slender collars there is only one, which emerges from under the shoulder fillet on the side opposite the boss. Sometimes the projection is ferruled, often with pits like eyes, and in one collar the prominence is said to have the form of a snake's head.[a]

sb. Shoulder ridge.—The shoulder ridge is a raised band cut in low relief, partly encircling the collar near the base of the projection, which it appears to bind to the body of the collar. It is sometimes broad and flat, but more commonly is a narrow bead, and in massive forms where there are two projections it fills the interval between them. Rarely absent, it is seldom in high relief.

dp. Decorated panel.—This term is applied to that region of the collar that lies adjacent to the boss, on the side opposite the projection. While the name is a useful one for distinguishing this part in some specimens, this panel, although smooth, is not ornamented. The general outline of the decorated panel of the oblique-ovate collars is quadrate or trapezoidal, with or without a marginal panel ridge formed by a shallow groove. In the massive forms the outline of this panel is often triangular. The superficial decoration of the panels of massive collars, when present, is less elaborate than that of the slender ones, and consists mainly of pits, incised circles, triangles, or parallel lines. Figures of faces with eyes and mouth are sometimes cut on this panel, which is ordinarily smooth, its surface slightly convex, and often highly polished.

dpb. Decorated panel border.—The margin of the decorated panel is called the panel border. In oblique-ovate collars this border is cut in the form of a ridge looped into scrolls, often with pits resembling eyes. In massive collars this border is sometimes pinched up into three triangles. An examination of the decorated panel border in several specimens of slender collars reveals a conventional face with representations of ear pendants on each side. In others the face and ears appear on the panel border, but are more conventionalized. The best specimens of panel border decorations are scroll figures.

dpg. Decorated panel groove.—A groove bounding the decorated panel and separating it from the panel ridge often marks the limit of the panel. In oblique-ovate collars this ridge is generally pinched up into an elevation at one angle of the panel, which is perforated, thus forming one decorated panel border perforation. The object of this perforation (*dpbp*) is unknown, but the care with which the ridge is modified at this point indicates that it must have been an important one. Massive ovate collars have no perforated angle of the panel.

up. Undecorated panel.—The undecorated panel lies between the shoulder ridge and the boss; it has a panel ridge but no decorated panel border. In massive oval collars the undecorated panel is simply a rough, slightly convex plane extending from one of the projections to the pole of the collar, the boss of this variety being absent. In many of the oblique-ovate collars there is an elongated shallow depression in the middle of this panel, but this is absent in the massive type. The meaning of this pit is unknown, but its rough surface suggests that it may have been the place of attachment of an ornament like a nugget of gold or a fragment of shell. On the Acosta theory that a head was formerly attached to the collar, the rough surface of this panel may have been the place of union, in which case the pit in the middle of the panel would have served to strengthen the attachment. The undecorated panel often has a panel groove (*upg*) and border (*upb*), but neither of these is so elaborately decorated as the corresponding region of the decorated panel. The rough surface of the undecorated panel is constant in all collars, indicating that it was hidden or covered in some way.

[a] This specimen is owned by Mr Leopold B. Strube, of Arecibo, who has sent the author a drawing which shows the knob in the form of a snake's head.

MASSIVE COLLARS

Plate LXIII, *a* and *b*, shows two specimens of massive stone collars, both collected by the author from Porto Rico. In *a* the boss can not be differentiated from the body of the object, and the decoration of the panel is obscure, consisting of a simple series of incised grooves of chevron form covering the whole face of the panel. There are two knobs, but the band is inconspicuous. This is a very heavy collar and could not be transported any considerable distance without fatigue. The form is oval, almost circular, not ovate.

Specimen *b*, on the same plate, is a massive oval collar in which the panel is also indistinct and is undecorated. The boss is missing, and there is but one projection, which is, however, exceptional in having an indentation on each side. The band is in low relief, flat and broad. This collar has a suggestion of an angular ridge on the side turned to the observer. The panel has a panel groove and ridge, which are brought out in the illustration by means of chalk in the groove.

Plate LXIV, *a* and *b*, represents a typical form of the massive collars collected by the author in Porto Rico. The collar *a* is so placed that the double knob is on the right side, the band being a broad, slight elevation. The undecorated panel adjoins the upper knob; the boss is missing, and the decorated panel is turned from view, the decorated panel groove appearing as three triangles, two of which are obscurely shown.

The massive collars represented in plate LXV, *a*–*f*, are typical forms. Specimen *a* is destitute of a decorative panel, but has a flat, nonconfluent, undecorated panel, extending from the end of the knob, that is evidently double as far as the region of the boss. The shoulder is more or less angular, and there is no sign of the band.

Specimen *b* also is of the massive type, with knobs, between which is a broad band in low relief. The decorated panel border of specimen *b* is pinched into triangular ridges, but the panel itself is without design. The shoulder is inclined to be angular, but not so markedly as in the other specimen in this plate.

There are but slight differences in various specimens of massive collars, yet such as exist are readily seen. Two massive collars are figured in plate LXV, *c* and *d*, both from Porto Rico. An examination of *d* reveals the fact that the undecorated panel does not conform in curvature with the surface of the collar as in the example illustrated in the previous plate, but is flat, extending from the neighborhood of the knob and band to the region of the boss, which is absent from all massive collars.

The collar represented in plate LXV, *e*, is somewhat better made than most collars of the massive type, and is more richly decorated. An example is here shown with a plain, undecorated panel, and double

knob, but with no indication of a band. The decorated panel, as will be seen by referring to the accompanying illustration, passes imperceptibly into the end of the undecorated panel. The shoulder is angular and the surface rough.

Specimen *f* has a highly ornamented decorated panel with well-marked panel groove and ridge. The knob is conspicuous, the band bead-like; the undecorated panel is absent. The shoulder of this specimen is round, with no tendency to angularity, its surface rough and unpolished. While several of the parts of a typical massive collar are evident in this specimen, its general appearance is somewhat different; of all the specimens obtained from Porto Rico this approximates most closely to the stone rings from the coast states of Mexico.

Specimen *f* has all the appearance of an unfinished collar, the superficial decorations being simply blocked out. There is no differentiation of the panels, and the knob and band are only obscurely indicated. This is the heaviest collar in the collection, but not the rudest in design, for there are two others which have no indication whatever of superficial decoration of any kind.

Professor Mason describes five specimens of massive collars, four of which are right-shouldered and one is left-shouldered. The two specimens figured can hardly be called typical, one (no. 17107) having a certain likeness to that figured as *b*, plate LXV, which is an aberrant form.

The main features of the massive oval collars, besides those implied in their name, are the total absence of the boss, a tendency of the projection to doubling, and the absence of a ridge or groove about the undecorated panel which contains the pit, so constant in slender ovate collars.

An examination of this series of massive collars, none of which have ever before been figured or described, shows that they should not be regarded as unfinished specimens of the slender oblique type unless it is to be supposed that unfinished collars have decorations of their own that can not be modified into those characteristic of the slender oblique collars. The distinct oval form of the massive collars, as compared with the pointed ovate form of the slender collars, is also an argument against supposing that the former are unfinished forms of the latter.

SLENDER COLLARS

Plate LXVI, *a*, represents a slender stone collar of the Latimer collection with an obscure knob and a broad, slightly rounded band. Its surface is rough and unpolished, and there is an indication of a boss. The undecorated panel is barely differentiated from the body of the collar. Specimen *b* is a slender ovate collar in which the different

regions are very imperfectly indicated. The knob is small, not prominent, the boss large, and the panels are obscurely indicated. The surface is much worn. A slender collar is described and figured by Professor Mason as follows:

> The shoulder is distinctly bell-shaped, having a pecked chamfer on its outward portion. The transverse shoulder ridge is quite prominent. The right or plain panel is inclosed in a quadrilateral ridge, which bears on the middle of its anterior and posterior sides a very marked swelling. This is a constant feature on the anterior and posterior margins of the panel on the shouldered side whenever this panel is present. The face of the panel is bounded by a border ridge and ornamented by a large ring in the center, on either side of which a human leg drawn up is represented. The anterior margin of this panel, which I have called the panel border, is a double scroll.

In *c* the knob is confluent with the band, and the latter is separated by some distance from the undecorated panel border, which is more pronounced than it usually is in slender collars. About midway in its length this panel border has a slight elevation, and there is a pronounced groove separating the undecorated panel border from the boss. In the middle of the undecorated panel is a pit which is quite indistinct in the figure.

The boss is low and slightly inclined toward the undecorated panel. Its surface is rough as compared with the other parts of the collar except the undecorated panel. The decorated panel is smooth, destitute of ornamentation, and bounded by a smooth panel ridge. The surface of this collar, which is one of the best in the collection, shows signs of much handling.

The remaining collar (*d*) is larger than the last-preceding one, and has a much rougher surface. The knob is triangular or pear-shaped, and confluent with the surface of the collar on the sides. The band is not represented, this being one of the few specimens of slender collars from which it is missing.

The undecorated panel has a long shallow depression that occupies almost its entire length, and the undecorated panel border and ridge are only obscurely indicated. The boss is more pronounced than that of specimen *a*, plate LXVI, and its top tips slightly to the left.

The decorated panel has an obscurely indicated panel groove and is slightly sunken below the level of the adjacent surface of the collar. It is smooth and without superficial ornamentation.

In figures 26 and 27 is shown a view of a slender ovate collar taken from the side of the decorated panel. The boss of this specimen appears to be truncated, and the depression in the undecorated panel is large, occupying almost the whole surface of the panel. The band is broad and the knob button-shaped. There is a space between the undecorated panel margin and the band, the diameter of which is slightly greater than that of the collar below the knob. The ear-like

extension of the decorated panel border is prominent, but not perforated, the ridge being smooth and not ornamented.

The slender collar represented in plate LXVII, *c*, is thus described by Professor Mason:

17080. The shoulder is bell-shaped, and the encircling shoulder-ridge abuts upon the shoulder, so that no line separates them. The right [the undecorated] panel is inclosed within a ridge with the swellings and has an oval cavity pecked deeply into its central space. The left [the decorated] panel is inclosed by a ridge with the loop in its upper anterior corner and is ornamented by an elaborate winged sun-pattern. The panel border is a wide scroll.

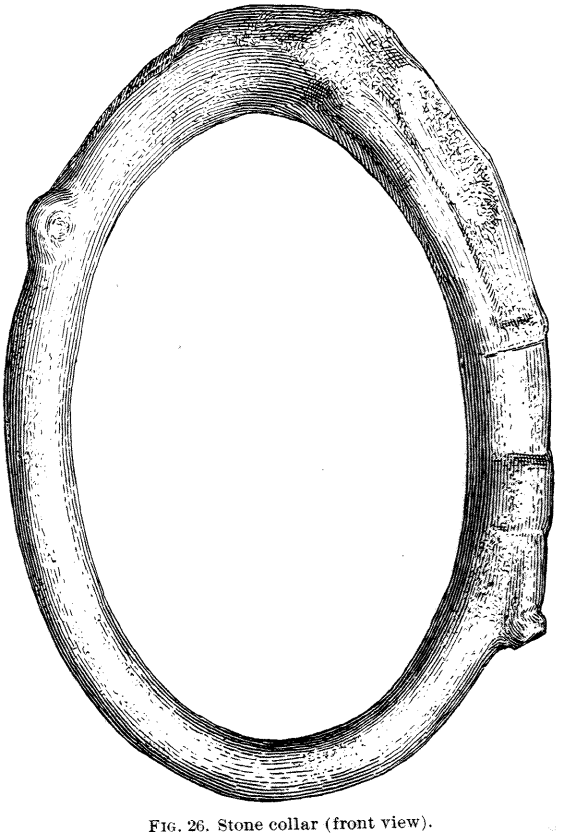

FIG. 26. Stone collar (front view).

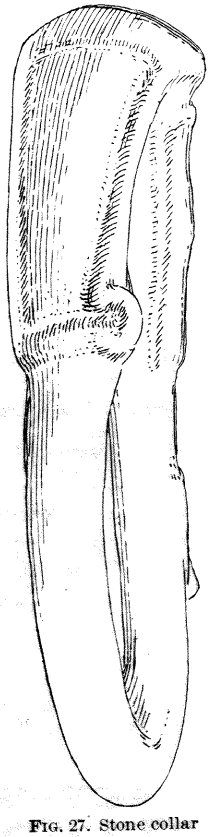

FIG. 27. Stone collar (side view).

The figure of this object given in *b* brings out clearly the design in the decorated panel border, while *b*, plate LXVIII, shows the same in profile and likewise the elaborate design on the decorated panel. The significance of the symbolism here expressed is difficult to discover, and the suggestion that it represents a winged sun is the best yet made.

Another slender collar is described by Professor Mason as follows:

17085. The shoulder is quite prominent, its upper circular face rolled outward. The transverse shoulder ridge is carried all the way around the stone. The right

panel is inclosed by a ridge with the prominences, and is rough pecked over its interior space. The left panel is inclosed by a ridge, and was formerly well ornamented, but it is now nearly worn off, whether by use or time I cannot say. The panel border is a delicate double scroll, having two of the volutes perforated. The boss, which in most of the slender collars is an immense swelling, oblique to the plane of the stone, is in this specimen rolled out like a pouting lip.

Specimen *a*, like the collars on the last-preceding plate (LXVI), has a finely decorated panel border, with much the same design as characterizes them. The symbolism of the figure is not apparent, but the region near the boss resembles a human face with eyes and mouth. Below the chin are two lateral extensions that might be compared to arms, and below these is a body with posterior appendages. The same figure is repeated in reverse order, ending with what might be called a representation of the head. It is apparent that if the design cut on the decorated panel border of this collar is intended to represent a human face, arms, and legs, these are highly conventionalized.

Professor Mason writes of this specimen, *c*, plate LXVIII:

> The shoulder is well set off from the stone, and is subtended by a very shallow ridge. The left panel has the marginal prominences and oval depression. The right panel is inclosed in a ridge looped at the upper anterior corner, which is continued to form a part of the panel marginal scroll. The panel is ornamented with a dotted circle at each end, inclosed in a sigmoid ridge, the ends of which expand gracefully to fill the triangular spaces between the sigmoid, the circles, and the border ridge of the panel. The boss is ridged up on the inside.

The undecorated panel has a broad border, a long, deep pit, and a prominent boss. The band is separated a considerable distance from the undecorated panel border, and the knob is prominent, with a slight depression on each side. The collar is well made, and the surface is smooth with the exception of that of the undecorated panel.

Specimen *d* of plate LXVII also has an elaborately cut panel border, the details of which are better brought out in LXVIII, *a*. This collar has a prominent boss and a smooth decorated panel with an obscurely indicated border which has a slight protuberance midway in its length on each side. The knob is very pronounced, and the band is obscure, being a swelling in the collar with undefined limits. The specimen is unlike most slender collars in having the diameter of the region between the decorated panel border and the knob somewhat less than that of the region near the knob.

The figures introduced on plate LXVIII represent the decorated panel border and surface of three slender ovate collars, which are shown in former plates. It will be noted that there is only the most distant likeness between the figures, but all have circles as the most prominent ornamentation.

These three figures, from Mason's catalogue of the Latimer collection, show other decorations of slender collars on the panels. In *a* there is a circle in the middle of the panel, with markings which

suggest two highly conventionalized bodies, or the two sides of one body split apart and extended, one on each side of the circle representing the head. In this interpretation the parallel marks near the head would represent the fingers and the others the toes. The figure is in a sitting posture, the knees drawn up to the breast. There is a close similarity in the panel borders of specimens *b* and *c*, each having a head with eyes and mouth, with extensions representing ears, one on each side. The surfaces of the decorated panels in these two specimens are differently ornamented, that of *c* having a likeness to that of plate LXVII, *b* and *c*.

The object shown in *a*, plate LXIX, is hypothetical, representing a slender ovate collar with a stone head tied to the undecorated panel, to illustrate the Acosta theory of the relationship of these two objects, but the two specimens chosen for this purpose were found in different localities in Porto Rico, and there is no probability that they ever belonged together. The collar has certain minor differences in comparison with those described in the preceding pages, more especially in the character of the knob, and the interval between it and the undecorated panel. It will be noted that the band is very obscurely indicated and that there is a groove in the knob that extends parallel with the collar. This groove may likewise be traced to the lower end of the undecorated panel and its border. This differentiation of the portion of the collar between the band and the panel, an exceptional feature, would appear to support the theory that the collar represents the coiled body of a snake.

THEORIES OF THE USE OF STONE COLLARS

The following discussion of the purpose of the collars is reprinted from the author's article on Porto Rican stone collars:[a]

The theories[b] that have been advanced in explanation of the use of the Porto Rican ring stones are almost as numerous as the writers on the subject, but unfortunately not one of the theorists has carried his hypothesis far beyond a simple suggestion. It may be interesting to mention a few of these theories, limiting the references to stone collars found in the Antilles and waiving for the present a discussion of their relationship to the stone yokes and collars of Mexico and Central America, concerning which there is considerable literature.

Mr Josiah Cato[c] writes thus of one of these collars brought from Porto Rico by Mr E. B. Webb:

> With regard to the probable use or purpose of these rings, I can give no information, but shall be very much obliged for any suggestion or for hints as to any works likely to contain such an account of the customs of the nations at the time of the

a *Smithsonian Miscellaneous Collections*, XLVII, 175, Washington, 1904.

b Acosta's theory that the three-pointed stone was united to the stone collar, forming a serpent idol, is considered at the close of this section (page 170 et seq).

c *Proceedings of the Society of Antiquaries*, 2d ser., IV, no. 5, 215–216.

Spanish invasion as may afford a clue to the mystery. Such elaborate pieces of work in hard stone could not have been intended to serve either a temporary or trifling purpose. They are all far too heavy for ordinary use, yet not heavy enough to kill or even to greatly torture the wearer, if we regard them as collars of punishment.

One of the early references to these collars occurs in Dr Daniel Wilson's work on The Archæology and Prehistoric Annals of Scotland (p. 156-157):

> But perhaps the most singular relics of the Stone period ever discovered in Scotland are two stone collars, found near the celebrated Parallel roads of Glenroy, and now preserved at the mansion of Tonley, Aberdeenshire. They are each of the full size of a collar adapted to a small highland horse; the one formed of trap or whinstone and the other of a fine-grained red granite. They are not, however, to be regarded as the primitive substitutes for the more convenient materials of later introduction. On the contrary, a close imitation of the details of a horse collar of common materials is attempted, including the folds of the leather, nails, buckles, and holes for tying particular parts together. They are finished with much care and a high degree of polish, and are described as obviously the workmanship of a skillful artist. Mr Skene, who first drew attention to these remarkable relics, suggests the probability of the peculiar natural features of Glenroy having led to the election of this amphitheater for the scene of ancient public games; and that these stone collars might commemorate the victor in the chariot race, as the tripods still existing record the victor in the Choragic games of Athens. But no circumstances attending their discovery are known which could aid conjecture either as to the period or purpose of their construction.

Although these collars may have been found at Glenroy and are ascribed by Doctor Wilson to the Stone age of Scotland, they are evidently Porto Rican in origin, having been carried to Scotland from over the seas. Stevens, in Flint Chips, includes these specimens with other West Indian collars in English collections.

Mason seems to have adopted no theory regarding the use of the rings or collars, saying: "Whether they were the regalia of sacrificial victims,[a] of military heroes, of ecclesiastical worthies, or of members of some privileged cast who marched in double file through the streets of Porto Rican villages long since decayed will perhaps forever remain a mystery."

Dr A. Stahl considers the collars, "toison de piedra," as insignia of rank worn by chiefs or caciques in important festivals or assemblies. This explanation he applies more especially to the slender specimens, for the massive forms he regards as possible implements of torture. It should be borne in mind that there is a general similarity in form of the massive oval and the oblique ovate types which would imply a like use for both. Doctor Stahl declares that they "never have the form of serpents, as some have supposed."[b]

Señor Agustin Navarette considers that these rings were neither idols nor parts thereof. He supposes that the massive forms were intended purely for the adornment of the cabins of the caciques, com-

[a] Professor Mason had already said that there is no mention of human sacrifice by the natives.
[b] Los Indios Borinqueños, p. 151-152.

parable with crowns which were worn by them. It is quite improbable, however, that objects which cost so much time and labor were designed to be purely ornamental; even were it granted that they were symbols of this kind, the question would still remain, What is the meaning of their superficial decoration?

Señor E. Neumann[a] regards it as certain that the entire lifetime of a human being would be required for the polishing and ornamentation of a completed stone collar. He ascribes to a Catholic priest, whose name is not given, the opinion that every cacique made a collar, to be deposited over his grave on the day of his interment in order to drive off the devil, but no proof is given to support this speculation. Señor Neumann regards the idea, which he attributes to Señor Pi y Margal, that the tail of a serpent was cut on the surface of the collar, as a grave error, and seems not to have appreciated the true relation of the two parts which Acosta supposes were united to form the serpent image.

Regarding the use of these collars, Ober[b] says:

> Just what that use was, no one can tell, the historians being silent on the subject; but I was told, when in Puerto Rico, by an old priest, that the Indians made them to be buried with them in their graves. One would spend a lifetime laboriously carving out this solid stone collar, that when he died it might be placed over his head, thus securely fastening him to his last resting place and defying the efforts of the devil to remove him.

The various interpretations of stone collars referred to in the preceding pages resolve themselves into two groups, one of which lays emphasis on the use of these objects as insignia or ornaments, the other on their symbolism. Those who have pointed out what they regard as their use have overlooked the fact that the decoration of the collar is highly conventionalized, an explanation of the significance of which they do not offer. We may accept the theory that some of them were worn on the body or around the neck, but the more important question of what they represent remains unanswered.

But there is a very serious objection to the acceptance of the theory that certain of these collars were worn as insignia, for some of them are too small, and the heaviest could be transported only a short distance, even by a strong man.[c] Evidently they were not worn by chiefs as ornaments. The theory that they were worn, in some instances, by victims of sacrificial rites is weak, for there is evidence in historical records that sacrificial ceremonies, except certain ones of very harmless character, were not practised by the Antilleans.

It may be said in reply that here we have survivals of insignia or symbols no longer used but preserving the form of those which were

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[a] Benefactores y Hombres Notables de Puerto Rico, II, p. li.

[b] Aborigines of the West Indies. *Proceedings of the American Antiquarian Society*, p. 26, Worcester, Mass., 1894.

[c] This objection to the theory that the stone collars were worn by men in dragging heavy objects, as logs or canoes, is a valid one.

once employed; and it may also be urged that the heavy, massive collars were unfinished, or that the massive and the slender form had different uses. While all these suggestions may have weight, it is remarkable that none of the early writers mention having seen the collars on the bodies of Indians. If they were used in the time of Las Casas, Ramon Pane, Benzoni, and other early writers, this must have been done in secret, showing that they were ceremonial objects. It is important to note that we have no early descriptions of the ceremonies of the Porto Rican aborigines from those among whom these collars would have been best known. No devoted Catholic priest observed and specially described the Borinqueños as Ramon Pane, Morales, and Benzoni did the Haitians. What we know of the Porto Ricans of the sixteenth and seventeenth centuries is derived from the briefest possible references of Oviedo, Gómara, and others, who say that in their time they were similar to the inhabitants of Hispaniola. The Porto Ricans may have used these collars in both secret and public exercises, but as no one is known specially to have described their ceremonies, there is no record of the purpose or use of these objects.

All the available facts extant in regard to these collars point to their religious, or, rather, ceremonial nature. We naturally regard objects made with so much care and so highly symbolic in their decoration as idols or as connected with worship. It is therefore rather as such than as secular implements or ornaments that we can hope to decipher their meaning. As their strange form presents enigmatical possibilities, we naturally associate them with that other enigma in Porto Rican archeology, the three-pointed stones.

The most suggestive interpretation yet offered is by Señor J. J. Acosta in his notes on Iñigo's great work, that these stone collars were united with the three-pointed stones, and that both together form a serpent idol.

The author has reserved consideration of this theory until the end, because it differs radically from all others, and because consideration of it demands a knowledge of the forms of the three groups of objects herein dealt with—stone collars, three-pointed idols, and elbow stones. Señor Acosta was familiar with the Latimer collection before it came to this country, and also with another, now scattered, which formerly existed in the Museo de Artillería at San Juan, P. R. He writes thus of the stone rings and three-pointed figures:[a]

Todos estos ídolos, aunque varían en el tamaño y en la clase de piedra en que están labrados, pues una son cuarzosas y otras calizas, ofrecen generalmente la misma disposición y figura. Consta cada uno de dos partes distintas y separadas, pero que se adaptan perfectamente entre sí.—1ª. Un anillo elipsoidal, en cuya superficie externa aparece tallada la cola de una serpiente.—2ª. Una pieza maciza cuya base, por donde se adapta al anillo, es plana y de figura elipsoidal, y cuya parte superior termina en

[a] Note in Historia Geográfica, Civil y Natural, de la Isla de San Juan Bautista de Puerto Rico, by Fray Iñigo Abbad y Lasierra, p. 51, Puerto Rico, 1866.

forma de cono; hacia un extremo del eje mayor de la base hay varias molduras caprichosas, y en el extremo opuesto una cara humana. Unidas las dos partes del ídolo, semeja el todo una serpiente enroscada con fisonomía humana.

[Translation]

All these idols, although they vary in size and in the kind of stone of which they are made, for some are of quartz[a] and others of limestone,[b] have the same general proportions and form. Each one is composed of two distinct and separate parts, which fit perfectly together: 1st, an ellipsoidal ring, on the external surface of which is cut a serpent's tail; 2d, a massive piece, the base of which, when it fits the ring, is flat and of ellipsoidal shape, while the upper part terminates in a cone; toward the end of the greater axis of the base there are various capricious moldings, and at the opposite end a human face. When the two component parts of the idol are united, the whole resembles a coiled serpent with human physiognomy.

One or two other authors speak of these collars as "snake stones," but as no additional grounds for this identification are given, they apparently accepted Acosta's conclusion.

Several significant facts appear to support the theory that another object was once attached to the undecorated panel of the stone collar:

1. This panel is left rough and is never decorated; its plane of convexity is approximately the same as the concave curvature of the base of the three-pointed stones. It has a pit or depression in its center, and the base of the three-pointed stone sometimes has a similar pit in the same relative position. On the theory under consideration the object of these pits would be to insure a firmer attachment of the two objects. The use and function of both collars and three-pointed stones are enigmatical, but their geographical distribution is identical.

2. Some of the elbow stones appear feebly to support the Acosta theory in this way: The elbow stone of the Latimer collection resembles closely that part of a collar which includes the boss and one panel. An examination of this panel shows that it conforms in relative position to the undecorated panel of a collar. A human face is carved in relief on this panel in the place at which the three-pointed stone would have been cemented to the collar. The elbow stone figured by Pinart has a similar face cut on its panel. On the supposition that there is a likeness in form between stone collars and elbow stones this fact may be significant.

It may be mentioned that since Acosta wrote the lines above quoted a larger number of these three-pointed stones than he saw have been examined, and that from increased knowledge of them minor corrections of his account are possible. For instance, what he calls "capricious moldings" toward the end of the greater axis are undoubtedly legs or appendages, while the "human face" at the other end of the greater axis is now known sometimes to be replaced by the head of a bird, lizard, or other animal. Acosta apparently was familiar with but

[a] Diorite. [b] Marble.

one kind of three-pointed stone—that called in this article the "first type."

As objections to Acosta's theory of the former union of stone collars and three-pointed stones, the following may be urged:

1. That in the available accounts of the religion of the natives of the West Indies no mention is made of a serpent cult and no record contemporary with the aborigines has given the snake a prominent place in myth or ritual. (It is recorded, however, that two wooden images of serpents stood at the entrance to a house on one of the islands visited by the Spaniards, and the author has already referred to a wooden serpent idol in Puerto Plata, which is one of the best-known examples of aboriginal West Indian wood carving. These show conclusively that the Antilleans carved images of snakes in wood, hence the implication is that these images were used as idols and played a conspicuous rôle in their worship.)

2. That no three-pointed stone has yet been found to fit closely the undecorated panel of any collar, nor have these objects ever been found united or in close proximity.

3. That some of these three-pointed stones bear birds' heads and representations of wings; others have snouts like reptiles; and, in many, grotesque human faces appear to have been represented, but not a single three-pointed stone resembles a serpent's head. (To meet this objection it may be urged that primitive art is rarely realistic, but more often is highly conventionalized.)

4. The presence of legs on a majority of the three-pointed stones of all types is fatal to the theory that these images represent heads of serpents. If we avoid this objection by limiting the theory of those three-pointed stones which have no legs carved in relief or otherwise, we are obliged to discriminate, whereas what is true of one should hold good for the others.

5. That representations of heads, realistic, symbolic, or both, are cut on the decorated panel borders of several collars. Although these carvings are sometimes highly conventionalized, their presence would imply two heads to the same body if a three-pointed stone also representing a head were attached to the undecorated panel.

The weight of evidence thus seems to be against the Acosta theory that the three-pointed stones were attached to stone collars for the purpose of completing idols of which he supposed the two objects formed the component parts.

Elbow Stones[a]

There is another group of stone objects, also found in Porto Rico, which, like those already considered, are problematical, yet which may

[a] There are several fine elbow stones in the Stahl collection purchased by the American Museum of Natural History in New York, and since writing this article a good specimen has been sent to the author from Ponce, P. R.

shed some light on the relationship between stone collars and three-pointed idols. Reference is here made to the objects which, from their shape, may be called "elbow stones,"[a] several of which occur in different collections. Some of these stones closely resemble fractured or broken collars of the slender ovate type and often have parts which may be compared to the boss, panel, and panel margin of entire collars. The finish of the extremities of the elbow stones indicates that they are not broken collars, but are of another type having some similarity to the stone collars. Their significance in relation to the theory that three-pointed stones and collars were the two component parts of a single object lies in the fact that a head resembling a mask-like three-pointed stone is sometimes found on the part of the elbow stone corresponding to the undecorated panel of the stone collar. The face is cut on the undecorated panel instead of being fastened to it, as in the case of collar stones.

Two examples of these elbow stones with faces may be mentioned to illustrate their significance in this connection; one (plate LXIX, *b*, *b'*) is figured by Mason, the other by Pinart. Professor Mason is doubtful whether the specimen which he illustrates[b] is a broken collar adapted to a secondary use or belongs to a distinct class. Something could be said in support of the former supposition, but there are similar specimens whose resemblance to a broken collar is less apparent. The elbow stone figured by Pinart[c] has a human face represented on that part of its surface which corresponds to the undecorated panel of a collar. In his description of this object, Pinart writes: "L'ornementation des premiers varie assez, bien que le principal sujet de l'ornementation se trouve toujours à la partie ou la collier présente un renflement. Cette ornementation représente dans la cas présente une figure humaine; nous avons recontré également la grenouille, la chouette, etc."

The figures of the above-mentioned objects resemble each other so far as the position of the face is concerned, the ears and fillet over the forehead being in both instances well represented. Pinart's specimen has the arms, or extensions comparable with that portion of the body of a collar, longer than those figured by Mason, and they are beaded at the extremity, a feature not represented in any stone collar. Similar beading is found on an elbow stone figured by Mason[d] in which no face is cut on the panel region, and the same feature occurs in a rude elbow stone which was collected at Ponce. In the Mason speci-

[a] This designation, here used for the first time, is a convenient one to apply to this group of stone objects peculiar to Porto Rico and Santo Domingo. The group includes many aberrant forms of elbow shape, the exact use of which is problematical. One of these is illustrated by Mason. The American Museum in New York has several beautiful elbow stones.

[b] Figure 58, The Latimer Collection of Antiquities from Porto Rico in the National Museum at Washington, D. C. *Smithsonian Report*, 1876.

[c] See Pinart, plate x, figure 3.

[d] Figure 195, The Latimer Collection.

men one arm is perforated, as in the elbow stone bearing a face which Mason describes and figures. The perforation and beading may indicate places for attachment of strings by which the object was suspended, or lashed to some other object.

One of the best of these elbow stones has a complete figure of a human being cut in relief on the panel corresponding to that bearing the face in the Mason and Pinart specimens. This object has no resemblance to a broken collar, although it belongs to the same type as that above mentioned. As in Pinart's specimen, the extremities of the arms or extensions are beaded, a feature not found in the Mason elbow stone, on which a face is represented. The elbow stone, which has a complete human figure carved in relief on its panel, is figured in Neumann's work above referred to, copied from a figure in the Spanish periodical *La Ilustración Española y Americana*. These elbow stones are regarded as a distinct type, having a morphological likeness to the pointed pole, and to the boss and neighboring parts of an oblique oval collar. Their use and meaning are enigmatical.

To this type of elbow stone belongs also the highly aberrant specimen represented in figure 195, in Professor Mason's catalogue of the Guesde collection. Mason thus refers to this object:

> An ornamental piece of bluish green color. It is rare in form, but not absolutely unique. In the American Museum at New York is a similar specimen. The chamfering and fluting are gracefully blended. The left hand extremity is perforated for suspension. From Punto Duo. Length of long limb, 8 inches; of short limb, $5\frac{3}{10}$ inches.

These elbow stones sometimes take the form of boomerangs and are without ornamentation, although one arm is generally fluted or beaded. In such specimens all resemblance to a broken collar is lost, leaving little doubt that the type is distinct from that of the collar, notwithstanding the resemblance of some of the more highly decorated ones to those characteristic objects. One of these stone elbows was found to exhibit at the shorter end evidences that it had been put to a secondary use—that of a hammer—for which its form is admirably adapted.

FIG. 28. Stone head (Imbert collection).

KNOBBED HEADS

Several heads made of stone were seen in Santo Domingo that differ so widely from the mask form that they are considered another type, although related to it. One of these (figure 28) in the Imbert collection is among the finest specimens of stone polishing received from the island. Another has a head in relief on one side of a rough stone.

Perhaps the most problematical of these stone heads is one (figures

29, 30) from the same island as those above mentioned, which is oval in shape, with the face in relief on one side, and with projections at each pole reminding one of the anterior and posterior projections from the back of the stone heads already considered. A remarkable thing about these specimens is the existence of three warts on the face, one on the forehead and one on each cheek. There was also seen in the same col-

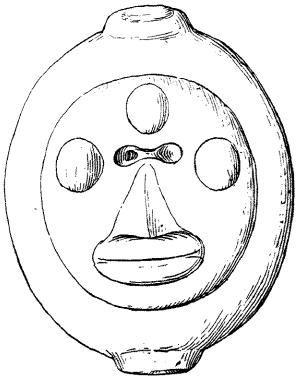

FIG. 29. Stone ball with face in relief (Imbert collection).

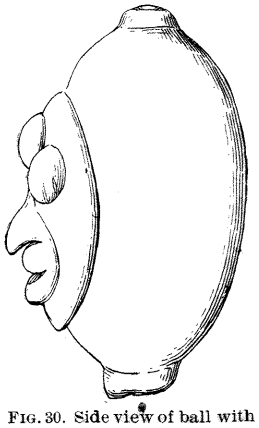

FIG. 30. Side view of ball with face (Imbert collection).

lection a stone ball (figure 31) with three similar warts arranged at the angles of a triangle. There was, however, no face cut on the surface of this ball.

Allied to these objects is the spherical or ovate stone, figure 32, that has a head carved in relief on one side. This unique specimen of a new type, from the Imbert collection at Puerto Plata, Santo Domingo, is related to the stone balls elsewhere described and figured.

PILLAR STONES

These objects make a distinct type, represented by several specimens in the Latimer collection and by some brought back by the author on his several excursions to Porto Rico. Many of these are massive and still remain in situ at different points on the island. They easily grade into large idols and apparently had the same use. In its simplest form, figure 33, the pillar stone is a slab of stone on the face of which is cut a rude pictograph that may represent a head or body with arms, or one end may be carved to represent a head. The work is ordinarily roughly finished, although one or two are fair specimens of aboriginal stone carving. So far as known the figures never represent animals, but generally grotesque human forms.

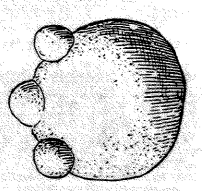

FIG. 31. Stone ball with knobs (Imbert collection).

The few specimens of pillar stones remaining in situ are in the neighborhood of the dance inclosures called *cercados de los Indios* or *juegos de bola*, a stone of this kind forming generally one of the large

upright stones which inclose these places. It is probable that pillar stones served as idols to which offerings were made or near which rites and ceremonies were performed.

A considerable number of these pillar stones occur in different parts of Porto Rico, but most of them are so large that they could not be transported to the United States without great difficulty. Several of these stones still remaining on the island are well executed; others are simply slabs of stone upon which are cut the rudest possible caricatures of the human face or head. The pillar stones are often called idols and the figures on them are sometimes classed as pictographs.

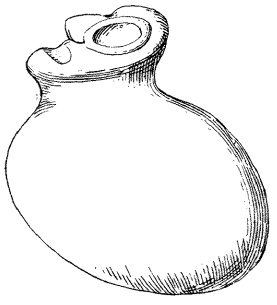

FIG. 32. Stone with head in relief.

Two specimens of pillar stones are shown on plate LXX, one (*a*) obtained by the author in 1903; the other (*b*) one of the best in the famous Latimer collection. Both are massive, roughly shaped, and much worn by exposure to the elements.

Specimen *b* has a human face near the end, outlined by a groove throwing it into low relief, the eyes and mouth being represented by deep pits. There is in this specimen a deep furrow from between the eyes to the end of the stone, and four parallel grooves extend longitudinally from the chin, representing the body or arms. There are evidences of pecking along the whole extent of the stone, indicating that its surface was artificially worked into its present shape. Near the blunt end of the stone are four pits deeper than the others, three of which may represent the eyes and mouth of a rude face.

Illustration *c* represents a pillar stone, of which Professor Mason gives this description:

FIG. 33. Pictograph on pillar stone.

17126. A fish-shaped bowlder, 28.5 inches long. On the narrow end is a sitting human figure, having the hands clasped under the chin and the feet doubled up with the soles together. On the stomach is a circle, seeming to have been designed to represent a human face.

The resemblance of this stone to a fish is at most a distant one, but the design on the narrow end certainly represents a seated human figure. The head, with eyes, mouth, and ears, is clearly evident, and, as is often the case in Porto Rican carvings, the forearms are so flexed that the hands are brought to the breast below the chin. Each hand has four fingers, and the palms, represented by triangular pits, are turned outward. The pit in the abdomen in the middle circles is supposed to represent the umbilicus, on each side of which are the legs. The feet are represented with toes, coming together just below the outer ring surrounding the umbilicus, with the soles turned outward. As is the case with the palms of the hands, the bottoms of the feet are represented by depressed areas. This is one of the finest pillar stones known to the author, and it is much to be regretted that but meager information is to be had regarding the locality where it was found.

Pillar stones of other forms, in the Latimer collection, are figured in plate LXX. One of these, *d*, has an angular form, one angle forming a median ridge extending across the face, represented by two grooves parallel to each other. The eyes are shallow depressions and the mouth is a transverse slit. The line of the jaw is indicated by shallow grooves on each side, joining below the mouth to form a pointed chin. As in the majority of pillar stones, the carving of the face of this specimen is very rude, the head alone being represented.

Plate LXX, *c*, shows a pillar stone that, in addition to a head, has portions of the body and the upper limbs also represented. This object was collected in Santo Domingo by Mr W. M. Gabb and is now in the Smithsonian collection. The eyes, nose, and lips are fairly well represented in low relief in this specimen, the eyes being round and prominent. The top of the head is continued into a cap-shaped prominence that is truncated above. The mouth is large, with prominent lips. The arms are in high relief on the sides of the body, the forearms being flexed and the hands indicated by marks on the abdomen. There are likewise scratches on the breast that were probably intended for the ribs.

It often happens in pictographic illustrations where head and body are represented by a few scratches that a number of parallel lines extend downward from the chin, reminding one of a beard. Such is the case in the specimen figured as *d*, plate LXXI.

Specimen *c*, plate LXXI, has a head carved on one end and may have been either a pillar stone or an idol. There are one or two botryoidal coral fragments (*Astrea* or some related genus) that have been fashioned by the aborigines to resemble idols.

Professor Mason gives short references to nine pillar stones, the most interesting of which he describes as follows:

17129. A rude slab of yellow stone, 28.5 by 13 to 10 by 6 inches. On the flat face is a human figure very roughly furrowed out, bearing on its stomach an inverted face. On the top of this slab a circle is furrowed out. The carving on this and the foregoing slabs was apparently done by pecking out the depressions with stone chisels, leaving the eyebrows, nose, and lips in intaglio.

Several supposed pillar stones bearing pictographic figures occur in the author's collection. These may not have been true pillar stones, but their likeness to such stones is so close that they belong to this type. One of these bears as a design a human face and part of a body. Although very indistinct, the eyes, nose, mouth, and ears of this object are evident on close inspection. This specimen was purchased from Señor Angelis of Cataño in 1903. Its small size indicates that it was not one of the boundary stones of a dance court.

Large Stone Idols

It is probable that in addition to pillar stones and slabs bearing pictographs some of the stones of Porto Rican dance inclosures were idols of massive proportions, occcupying a prominent place within the inclosure, possibly on a raised platform.

The author has heard of several of these idols, but while unable to procure a single specimen, although he believes such might be found by systematic excavation of the accumulated débris on the floors of the dance inclosures, several reliable persons have informed him that such an idol formerly stood in a dance inclosure near Utuado. This idol is said to have the head and breast of a female, and Mr Roig, owner of the farm where the dance inclosure is situated, stated to the author that it stood on a raised platform on one side.

It was carried to Arecibo several years ago and mounted on a pedestal in front of the buildings of the hacienda Mercedes, but during the Ciriaco cyclone of 1898 the buildings were wrecked and the idol was overthrown and covered with wreckage. Regarding its subsequent fate there is want of uniformity in statements, some saying that it is still in private hands, others that it lies buried in the débris. The author was not successful in his search for this relic or for a photograph of it which is reported to be in existence.

There are other large idols, more or less rudely made, still in situ at different dance inclosures, but these differ but little from the pillar stones above described.

The antiquities of Cuba and Porto Rico are so dissimilar that the culture of the aborigines must have varied considerably, and relics from different parts of Cuba show a marked variation in prehistoric Cuban culture.[a] It appears that the prehistoric natives of some regions of the greatest of the Antilles were more backward than those of Haiti and

[a] Prehistoric Culture of Cuba. *American Anthropologist*, n. s., VI, 585, Oct.-Dec., 1905.

Porto Rico. At the eastern end of Cuba the prehistoric culture somewhat resembled that of the other islands of the Greater Antilles, but at the western end it was very different, indicating that the higher culture was not indigenous but was introduced from Haiti and Porto Rico. The two extremities of Cuba, the regions nearly coextensive, one with the province of Pinar del Rio, the other with Santiago and Puerto Principe, may have been at no distant geological epoch separate islands, the intermediate lowlands then being under the sea. It is logical to suppose that the faunal and floral differences may have originated at that time, and if that epoch were very recent, as evidences seem to show, man may have dwelt on Cuba when the extremities were separate islands. At no distant time, probably not long before the discovery of the West Indies by Europeans, the majority of Cuba's inhabitants were low in culture, but an influx of a higher culture had already affected the eastern end. The western extremity, even in the time of Columbus, still remained in a primitive condition. The race had not been influenced by the culture of Haiti, nor, what is more remarkable, by that of the neighboring peninsula of Yucatan, on the soil of which there had developed one of the highest stages of culture attained in America in prehistoric times. The culture of western Cuba was not as highly developed as that of Porto Rico, if we judge from the character and artistic excellence of the archeological remains. Unfortunately there is very limited material from which to form a true conception of the nature of the primitive culture of Cuba. Local museums are poor in specimens, and there are few specimens from this island in foreign collections. One or two of the objects are so different from those of the neighboring islands that their exceptional character can be explained only on the theory that the cultures were different.

Plate LXXII, *a* and *a'*, represents the front and side views of an idol in the Santiago Museum that comes in this category. The object is undoubtedly an idol, but of a form different from any originating in Porto Rico. The author believes it to be genuine, but so exceptional is its form that more testimony would be desirable to establish fully its authenticity.

In *b* is represented a stone upon which is carved a human face. It was purchased by the author in Santiago de Cuba. The idol shown in *c*, preserved in the museum at Santiago, differs somewhat from idols of Porto Rican origin, but has a pestle form not unlike some of those from this island described in the preceding pages, and is made of coral rock.

POTTERY

The aborigines of Porto Rico were expert potters, as is proved by specimens of their craft that have been found in abundance in shell heaps, caves, and other sites. No whole pieces of pottery from Porto

Rico have been described hitherto, and little is known of ceramics from the other islands, except Jamaica; but in the present essay there are figured several whole bowls and vases from Porto Rico and others from Santo Domingo and the Lesser Antilles. In a general way it may be said that the pottery of the West Indian islands, from Trinidad to Cuba, is of the same general type.

The objects of burnt clay made by the Porto Ricans were for the most part vases and shallow dishes, the latter more properly called plates. They made also globular bowls, canteens, and bottle-shaped flasks. Many of these vessels are of circular shape, others oval or boat-shaped, and of the latter the sides are sometimes angular. The rim is often decorated with relief figures. The most exceptional specimen of Antillean pottery is a canteen (plate LXXX, *a*) from Santo Domingo with globular extensions on each side of a central perforated neck that bears on one side a human face.

As a rule the pottery is coarse, unpainted, and rudely made. Many of the specimens have flat, others rounded, bases. The larger vessels show evidences of having been made by coils of clay rubbed together by a stone or some smooth implement. No specimens at present show evidences of painting or glazing, but this may be due to the objects having been buried so long in the earth or exposed to the action of the elements.

The decoration is ordinarily incised by lines or relief figures. Among the common forms of incised geometrical designs are lines, triangles, spirals, and circles. Spirals are rare, but parallel lines are very common. None of the pottery objects examined have human or animal faces cut in intaglio. A marked feature in rectilinear decoration is the indentation of the extremity of each line. The potter commonly terminated a line with a shallow pit that was apparently made with the same instrument as the line itself; or it was sometimes slightly separated from the end of the line. So constant, almost universal, is this feature that it may be looked on as characteristic of pottery from Porto Rico and Santo Domingo.

An instructive feature of Antillean incised decoration is due to the habit of breaking the continuity of circular lines and inserting at the break either a pit or a short line drawn at right angles. This feature, which occurs not only on pottery but also in stone implements and wooden objects, reminds one of the line of life in pueblo pottery.

No specimens show evidences of painting or of a superficial layer or slip of white clay, or kaolin. Surface painting appears to have been replaced by figures in relief, effigy vases being among the most common pottery forms, but there is a possibility that a superficial covering once existed and has been worn off.

While only a few of the specimens of Antillean pottery here figured came from Porto Rico there is little doubt that all the forms introduced were known to the prehistoric inhabitants of that island.

The different forms of bowl handles and other fragments of pottery that were excavated in the Cueva de las Golondrinas, near Manati, are represented in plate LXXIII. The handles are in general similar and evidently belonged to coarse bowls, vases, and ollas. In similar forms a raised ring of clay served all the purposes of a handle, but there were often added grooves with adjacent elevations. The handle was sometimes broad and flat, at other times narrow and round. One of the specimens represented on this plate has two solid knobs on the rim; another is perforated just below similar knobs. The edges of the handles of many vessels are pinched into ridges that may be corrugated, notched, or serrated.

Hardly any two handles are exactly alike; those on this plate represent only the more typical forms. These show that there was an abundance of red ware. The surface of this pottery in one or two instances is smoothly polished. The majority of specimens are handles of cooking pots, many of which are blackened by soot from fire.

Every collection of Porto Rican objects contains burnt-clay heads (figure 34), that have been broken from some bowl, vase, or other pottery object. These heads vary in size, form, and other particulars, and are often fashioned with considerable skill. Not unusually we find considerable fragments of flat dishes or bowls attached to them, showing that they are handles; but in some instances they were evidently low relief figures pressed on the surfaces of the vessels.

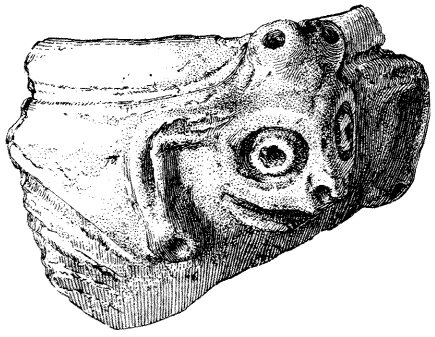

FIG. 34. Fragment of a bowl.

These objects are sometimes called *zemis* or idols, an identification that is misleading, for there can hardly be a doubt that they are simply portions of broken jars or vessels excavated from caves, shell heaps, or dance inclosures.

Plates LXXIV and LXXV give a fair idea of the general forms of these clay heads. The latter have little in common except their large round eyes, fillets over the forehead, and mouths wide open. The general cast of many of the specimens suggests monkey heads, but this resemblance is unintentional, being due rather to the method of working clay into faces adopted by the ancient potters. It is impossible to identify the great majority of these figurines, and they may be regarded as simply fantastic forms used for decorative purposes, having no further import or meaning.

Professor Mason gives several figures of fragments that illustrate fairly well the general character of Porto Rican pottery. Five of these are heads which once decorated the rims of bowls or vessels of

other shapes: one is a fragment of a platter with a head attached like a handle, and one represents an incised fragment. He writes:

There is not an entire vessel in the collection, all of the specimens being fragments of variously shaped, coarse, red pottery, well baked, one or two pieces being glossy on the surface. Nearly all of the ornamentation is produced by animal forms luted on. The most of these are monkey heads adorned with scrolled, circular, and fluted coronets, and by deeply incised lines, often forming very ingenious patterns. Others bear human faces, all grotesque, and the figures of mythological animals. In one of them a W-shaped wreath or festoon is luted on the outside. A fragment of the bottom of a cup or jar deserves especial mention on account of the ingenious labyrinthine design traced on it by a deep furrowing produced evidently by a sharp instrument when the vessel was soft. This bold, deep tracing is characteristic of all the ornamentation on the pottery.

While the author was preparing this report Dr Walter Hough, of the National Museum, called his attention to a notebook that accompanied the Latimer collection containing several good pencil drawings of three-pointed stones and collars in that collection. On one of the pages of this book occurs this statement, written in an unknown hand:

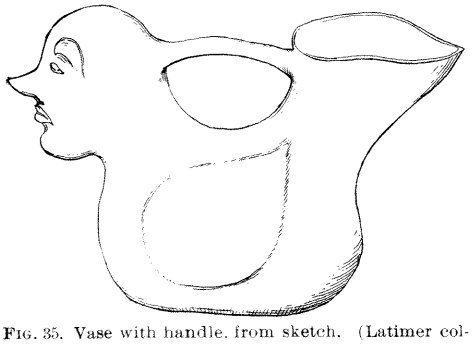

FIG. 35. Vase with handle, from sketch. (Latimer collection.)

The following drawings are copies made from those taken by me of stone articles in the collection of Carib curiosities of George Latimer, esq., of St John [San Juan] in the island of Porto Rico. Some specimens of Carib pottery in the same collection are also represented. These were all found in Porto Rico, although I have collected similar specimens in the island of St Croix, some of which are in the possession of the Long Island Historical Society. A battle-ax of stone, 15 inches long and 8 inches wide on the blade, found in St Croix, was presented by me to Mr Latimer, at whose request these sketches are now sent to the Smithsonian Institution.

Brooklyn, February 11, 1870.

Another drawing in this notebook represents an effigy vase of such unusual shape that a copy of it is reproduced in the accompanying cut (figure 35). This vase apparently never came to the Smithsonian Institution with the Latimer collection, and is not mentioned by Professor Mason in his catalogue.

An examination of the other drawings in this notebook and a comparison of them with the originals from which they were made show that, while not accurate in all details, they are fairly good in the general outlines. For instance, there are pictures, evidently of the three-pointed idols which Professor Mason illustrates (figures 40 and 42 in his book), showing the salient features of those specimens clearly enough for identification. There is, therefore, every probability that the drawing of the object labeled in this notebook an "earthenware

pitcher" is reliable for general form, even if not accurate in some details.

This lost vase of the Latimer collection has the form of a bird, of which the head is represented on one side, the neck on the other, the two being united by a handle. The body is ovate, inclined to globular, with indications of the wings in relief areas on the sides of the body.

An Antillean effigy vase of one of the most interesting forms was collected by Mr Gabb in Santo Domingo and deposited in the Smithsonian Institution. Although this object (plate LXXVI, *a* and *a'*) is destitute of a head, its other characters are so remarkable that it may be regarded as the most exceptional form of pottery from the West Indies yet known. This specimen represents half of a seated figure, one side being perfectly flat, the other rounded. The front view shows a portion of the head and the body, legs, and arms, the last mentioned being brought to the breast. Representations of the ribs and of several of the vertebral processes are shown in the side view. The umbilicus appears in both figures and male sexual organs are visible. The thigh, indicated by a ring, shown in *a*, is double or broken at one point, as is common in incised decorations of this character. The toes appear below the rump; the upper leg and knee are well modeled.

In *c* is represented a bowl from Archbishop Meriño's collection which is exceptional in having its equator surrounded by a raised ridge of zigzag form indented throughout with notches, and specimen *b* of the same plate has the surface decorated with incised lines and a face in relief on each side, bearing likewise pits with indentations that represent anterior and posterior appendages.

One of the small globular bowls shown in plate LXXVII, *a* and *a'*, was found in a cave not far from Utuado, Porto Rico. From its association with a necklace of stone beads, elsewhere described, and other offerings, this object was evidently mortuary. Seen from the top, it will be noticed that diametrically opposite each other on the upper side are two 8-shaped dentate elevations, the only relief ornamentation of the vessel. On the sides of the bowl, filling the interval between the 8-shaped elevations, are incised decorations consisting of two circles with pits and parallel lines between them. A shallow incised groove surrounds the opening of the bowl. A side view reveals a portion of the flat base upon which the object rests, an unusual feature in most Antillean bowls and vases.

In *b* is represented a bowl almost entire that was plowed up in a cane field near Salinas, Porto Rico, and, with the three three-pointed stones elsewhere mentioned, presented to the Smithsonian Institution by Mr Zoller. This bowl has a head in low relief seen on the right side near the rim, but the corresponding head on the opposite side of the bowl is missing.

Specimen *c* is a cooking pot of coarse ware excavated by the author in 1903 from a burial mound at the dance place near Utuado, Porto Rico. It has a handle attached to the rim not unlike in general form some of those excavated in the Cueva de las Golondrinas, although the majority of them are different. This pot was found near a seated skeleton and was evidently a mortuary offering. It probably once contained food or similar perishable substance.

In *d* and *d'* are represented fragments of flat saucers excavated from the floor of the Cueva de las Golondrinas. The heads upon them represent human heads and were probably duplicated on the opposite rims of the saucers. At their side there are representations of the fingers or feet.

The dish or bowl shown in *e* and *e'*, obtained by purchase from Archbishop Meriño, of Santo Domingo, is a significant specimen, showing how the clay heads so abundant in collections from Porto Rico were attached to their respective bowls. Their frail union with the rim of the vessel is no doubt the reason these objects were so often broken away from their attachments.

On the side of this bowl, below the attached heads, are handles, recalling the bowl handles already figured, and each head has a triangular lateral extension, supposed to represent feet or appendages. The border of the bowl is ornamented with incised lines.

The most beautiful of all the effigy vases from Porto Rico is shown in plate LXXVIII, *a* and *a'*. This specimen, now in the Smithsonian collection, was purchased in 1904 from a gentleman who had obtained it a few years before in a cave near Aguas Buenas, not far from Caguas, Porto Rico. This vase is made of coarse clay and has a rough surface; the base is rounded, not flattened. The superficial decorations, both incised and in relief, occur on the upper part. It is not wholly evident what animal the maker of this object had in mind to represent, but a view from above shows a well-made head, a tail, and four limbs.

The face (*a*) has elongated eyes and a peculiar T-shaped nose with nostrils on tubercles, recalling some of the flat stone heads and three-pointed idols elsewhere considered. The ears, highly conventionalized, consist of a curved raised ridge arising from just above the eyes; from this position they extend laterally to form the eyebrows, and end in a ring-form elevation on the sides about on a level with the nostrils. The portion of the head above the forehead has a raised circular area in the middle, below which are two lateral tubercles. These elevations correspond quite closely in arrangement with the ornamentation on some of the three-pointed idols, especially one of the third type figured in a previous plate. On the back of the head is an incised circle, and around the neck a necklace in relief, with median tubercles, possibly representing pendants.

The two legs, one on each side, are very characteristic. The anterior appendage consists of a tubercle with a pit representing the shoulder, a slim forearm extending to an elbow at the rim of the bowl, and another forearm brought forward and ending in feet or fingers.

The arrangement of the posterior appendages (a') is somewhat similar. A thigh is represented on each side at the equator of the bowl, and from it arises the upper joint that extends backward to the knee, forming a projection with tubercle and pit. The lower joint of the posterior appendage is bent forward and ends at the mouth of the jar. The soles of the feet are triangular. A ridge extending directly from the thigh joint to the feet of the posterior limbs incloses a triangular area, in the middle of which there is an incised circle with central dot. There is a similar ridge connecting the shoulder with the elbow of the anterior legs, also forming a triangle decorated with a circle and dot. On the side of the bowl between the two pairs of appendages there are incised triangles, a semicircular groove, and rows of pits.

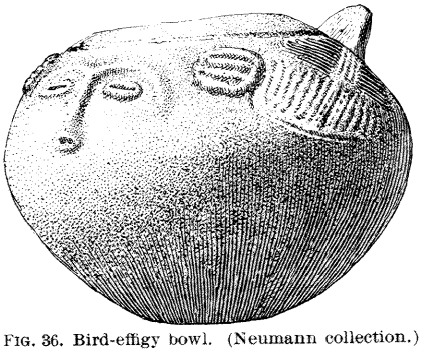

FIG. 36. Bird-effigy bowl. (Neumann collection.)

The globular bowl shown in plate LXXIX, a, a', one of the finest as well as the most instructive in the whole collection, was obtained by purchase from Señor Neumann,[a] of Ponce, Porto Rico. Its surface has both relief and incised decorations. Seen from one side (figure 36) are two eyes in relief, over which are arched crescentic ridges that form the eyebrows. These ridges merge on the middle line and form between the eyes a low ridge, forming a nose that broadens slightly at the extremity, where there are two pits representing nostrils. There is no indication of a mouth; the eyebrows, eyes, and nose appear in view from above (see a'). On the sides of the bowl, behind the eyes, are two flat oval areas in low relief crossed by parallel lines, suggesting appendages, possibly feet. At the ends of these lines there are small pits, a mode of decoration found also on the larger areas of this specimen and common on other bowls and decorated fragments of pottery. Opposite the head, at about the same distance from the opening of the jar as the head, is a broken tail, which, like the relief areas above mentioned, is crossed by parallel lines, each with terminal pits. Two half-oval regions, slightly raised in relief and situated between the tail and the legs, have pairs of parallel lines crossing one another about at right angles, the lines of each pair inclosing a row of shallow pits. The four triangular figures

[a] Eduardo Neumann Gandia, Benefactores y Hombres Notables de Puerto Rico, 2 vols., Ponce, 1896.

formed by this cross are occupied by parallel incised lines ending or alternating with shallow pits. These two areas, bounded on one side by an incised groove surrounding the mouth of the bowl, are representations of wings. The bowl may be interpreted as an effigy of a bird, the wings and tail taking the form of relief areas crossed by incised lines.

One of the finest specimens of Antillean pottery in the whole collection is figured on plate LXXX, *a*, *a'*, and *a''*. This object, purchased from Archbishop Meriño, of Santo Domingo, has been described in the preliminary report of the expedition of that year. In its form this remarkable object is exceptional. When seen from the broad side (*a'*) it will be noticed that the specimen is flask-shaped, by reason of two lateral extensions, each resembling a human breast tipped with a nipple. Its neck is not unlike that of the bottle-shaped vessel already mentioned, and bears on one side a face with eyes, nose, and prominent ears in low relief. This neck is attached to the body of the flask with pitch, but it is not clear whether it was originally made in this way or had been broken and later mended. The base is flat and circular. On the surface of the vessel, surrounding the nipple-like terminations of the lateral mammæ, are incised grooves inclosing other crescentic lines, that are not continuous but broken by an interval, a "life door," in which are two short parallel incised lines, a repetition of the characteristic mode of Antillean decoration to which reference has been made in preceding pages.

The surface of this vessel is rough, showing evidences of former polish. The resemblance of the lateral extensions to mammæ and of the neck to the male sexual organ suggests that this object may have a phallic meaning; but whatever its import, it is one of the most exceptionally formed vessels yet found in the West Indies.

The instructive and interesting bowl shown in *b* and *b'* was obtained in Santo Domingo by Mr Gabb. Although its form is almost spherical, it has a pronounced equatorial ridge and a neck well differentiated from the body. The sides of this vessel are decorated with two heads made in low relief and placed diametrically opposite each other, a short distance below the neck. Each head is accompanied by raised figures representing hands with palms turned outward. Above the forehead are several ridges, forming a head ornament. This specimen may be regarded as one of the finest pieces of unbroken pottery from Santo Domingo in the Smithsonian collection, and is of the type of several others, most of which exist only in fragments.

There are two other bottle-shaped pieces of pottery in the Archbishop Meriño collection from Santo Domingo, both of which bear faces in relief on the neck. Plate LXXX, *c*, represents one of these. It is characterized by a globular form, and an angular equatorial elevation,

its neck being short and stumpy. The decoration on the surface of this bottle consists of three incised parallel lines, the inner one of which is broken, the interval being occupied by pits. The face has nose, globular eyes, and ears; the last named are prominent elevations. The upper part of the ears is enlarged or perforated as if for the attachment of a cord, by which the bottle formerly may have been carried. The narrow lip of the bottle is separated from the neck by a slight constriction.

Illustration *d* in the same plate represents a bottle-shaped object flattened on two opposite sides, the neck being elongated above a head formed in relief, although closely appressed to the body of the bottle. Eyes and mouth are deeply sunken in the face; the nose is low, not prominent; the ears are lateral projections, with the upper and lower lobes indicated by depressions. The incised decorations on the body of this object are strikingly different from any yet described. On the right side they consist of broken lines separated at their ends by spaces in which are short depressed grooves. Some of these lines end in deeper pits; others are destitute of this character. On the left side this decoration consists of various figures among which an irregular triangle is conspicuous. The base is flat and circular, the surface rough except about the mouth of the bottle.

Pottery found in Santo Domingo often has a bottle or flask shape, as represented in *a* and *a'*, plate LXXXI. This object, now in the Imbert collection at Puerto Plata, was obtained on the north side of the island. The main difference between it and the one next preceding consists in the presence in specimen *a* of a face in relief on one side of the neck. The nose, much enlarged, appears as a series of folds, separated by depressions, filling the space between the eyes. The body of the flask has a pronounced angular form and a flat circular base. In *b* is represented a similar flask-shaped vessel of globular form, the eyes and mouth being in relief, and the ears showing on each side. The mouth of this vessel is bottlelike. Specimen *c* is a bowl, which, like the last, is from the Imbert collection. On opposite sides of the rim arise projections that are decorated on the inner surfaces with parallel incised lines terminating on one end in pits. Side and lower views of a fragment of a bowl in which appear the upturned head and limbs of a grotesque human being are shown in *d* and *d'*. The specimen from which this was drawn is now in the collection of Señor Imbert, of Puerto Plata, Santo Domingo.

A most instructive piece of effigy pottery, possibly a clay idol,[a] was figured by Pinart, who ascribed the ownership to Padre Bellini, of Santo Domingo. It is made of reddish-brown burnt clay, 19 cm. high

[a] The early writers say that the Antilleans made their *zemis* of clay as well as of stone, wood, metals, and cotton fabrics.

and 12 cm. across the base, and is said to have been found in a cave at the Rancho Viejo, situated between the cities Bani and Azua. The illustration shows a crouching attitude, the arms crossed on the knees, the head covered with a kind of cap, and the ears with prominent ornaments. Pinart regards this specimen as the sole known object of its kind from the island of Santo Domingo.

An examination of his illustration, which is not very clear, brings out, however, important points not mentioned in his description. The image is represented as seated on a stool of which two legs are shown and which may be identified as one of those aboriginal *duhos*, described later. From the shoulders extends a projection slightly flaring at the top, recalling a similar addition on wooden idols.

This remarkable image seems not to have been described by other writers, and its present owner is unknown, which is to be regretted, as new and better figures accompanied with more detailed descriptions are much to be desired. We have, however, knowledge of another clay effigy image from Santo Domingo which belongs to the same type. When the author first saw this latter idol or effigy vase he supposed that it was the same as that figured and described by Pinart, but later study and comparison of photographs of it with the illustration given by Pinart shows marked differences. This idol, plate LXXXII, *a*, is now owned by Señor Desangles, a noted Dominican painter, who kindly permitted the author to examine it and to make the photographs and drawings reproduced in plate LXXXII. The specimen is made of burnt clay, having a reddish color and a smooth, unglazed surface. It represents a human figure seated on a stool with its head bent forward and the elbows resting on the knees. One of the legs of the image is broken; the other is entire and is shown in profile. The head is surmounted by a cap that is rounded above the face. The nose, eyes, and mouth are fairly well made. The body is curved and crouched forward, narrowing to the waist, the vertebræ and the ribs being realistically represented in relief. The arms are girt above the elbows with bands. The lower legs are swollen and show slight tubercles on the outer sides of the ankles. There is no indication of an extension from the neck or back above the head as in Pinart's specimen, a difference which readily distinguishes the two specimens. The whole surface is smoothly polished and is somewhat darkened by repeated handling, but still retains the original dark reddish or brown color. Illustrations *b*, *c*, and *d* are representations of fragments of pottery from Nipe bay, Cuba, and show the striking resemblance between the ceramics of Porto Rico and those of the largest of the Antilles. These are fragments of jars or bowls, broken from the rims or sides.

Several of the more striking clay heads in the collection obtained in Santo Domingo are figured on plate LXXXII. These, with the excep-

tion of specimen *h*, are broken relief decorations of bowls or vases. It (*h*) has a body and limbs, and is not a mere head, the hands being represented resting on the knees. Specimen *e* is a large fragment of a flat bowl with relief ornamentation on the rim and a head in high relief. This figure likewise includes arms with pits in the shoulders and in other portions of the body. Illustration *j* represents a clay head obtained by the author in the city of Santiago de los Caballeros, Santo Domingo. In *f*, *g*, and *g'* are represented necks of bottles bearing faces on one side. They are hollow, with an opening at the top. One fine specimen, much more elaborate than the others, has a polished surface and the features of the face are more than ordinarily well made. Several other specimens, figures *k–m*, represented in plate LXXXII, are necks of bottles or flasks adorned with laterally placed heads made in relief, the incised superficial decorations in each occupying the intervals between these heads. Pits at the ends of these incised lines, a constant feature in Antillean incised decorations on pottery, are shown in *g* and *g'*.

The two dishes from Santo Domingo shown in plate LXXXIII, are fine specimens of Antillean pottery. Specimen *a* is more highly conventionalized than specimen *b*; the latter has raised heads on the rim, surmounted by a projection probably representing feathers. Both these specimens are trencher-shaped and were probably used as platters for food. They resemble the dishes from caves in Jamaica, described and figured by Doctor Duerden and others.

The aborigines of the Lesser Antilles, like those of Porto Rico and Haiti, were good potters, and fine specimens of their ware are found in St Kitts, Grenada, and Trinidad. The small island of Carriacou, near St Vincent, where there are said to be Carib cemeteries, has yielded instructive fragments of ceramic ware, some of which are among the finest yet recorded from the West Indies.

Plate LXXXIII, *c–f*, representing pottery from St Kitts, gives an idea of vases, bowls, and platters from this island. The ware has a red color and a fine superficial polish and is decorated with incised lines filled with white pigment. As there are no effigy vases in this collection, it would seem that the makers relied more on painting than on relief figures for ornamentation. The texture, color, and forms of pottery differ somewhat from the Porto Rican variety, as is natural in art products of different races.

Pottery from the island of Grenada is likewise a fine typical variety of red ware, varying in forms, but sometimes decorated with relief heads resembling those found in Porto Rico. It is naturally allied closely to ceramics from Trinidad, specimens of which are figured in plate LXXXV.

The Grenada pottery (plate LXXXIV, *a–f*) is closely related to that of St Vincent, resembling fragments of heads from Carriacou, which are

among the finest West Indian ware that has yet come to the Smithsonian Institution. While in their general character and relief decorations, these bowls or vases are not far removed from the Porto Rican, they have a specialized form that is distinctive and readily recognized. Plate LXXXIV contains several heads made of clay covered with what appears to be a superficial slip or pigment which becomes red in firing. The vessels of which they were relief decorations must have have been exceptionally fine ones, but no complete bowl was obtained from the island of Grenada or from Carriacou.

The geographical position of Trinidad—its contiguity to the mainland—links its fauna and flora to those of South America. There can be little doubt that the prehistoric culture of this island was identical with that of the banks of the Orinoco. Moreover, Trinidad, known to the natives as the "land of the humming bird," was the gateway of prehistoric migrations from South America to the Antilles. Archeological evidences of the character of human culture on this island in prehistoric times are particularly important.

There are several beautiful specimens of Trinidad pottery in the Victoria Institute at Port of Spain, two of which, through the kindness of the officers of that institution, were photographed and have been reproduced in plate LXXXV. These specimens are thus described in the appendix to Collens's Guide to Trinidad:[a]

> The discovery of some interesting Indian relics at Erin during the past month [May, 1888] is, although I had brought my work to an end, of sufficient importance to demand a brief notice. On the occasion of a recent visit of His Excellency Sir W. Robinson and suite to the southern quarter of the island, the Hon. H. Fowler, who was one of the party, observed a mound of shells. Dismounting, a closer inspection revealed some pieces of rude pottery, and subsequent excavations by Mr A. Newsam, the warden, led to the unearthing of some capital specimens, indicating beyond a doubt this had been the center, at some period more or less remote, of an Indian settlement.
>
> The pottery is of two kinds, glazed and unglazed, the latter dating back to a time anterior to the discovery of the New World, for the art of glazing was unknown to the early Indians, nor is it likely that they became acquainted with it after the Spanish occupation.
>
> Mr. Fowler has very kindly placed at my disposal plate I, and I gladly publish it in my guide, as it may be of assistance in future investigations in Trinidad. I may add that Mr. Fowler himself collected in Honduras the objects depicted in plate I, and they indeed form the groundwork of a paper read before the Archæological Society in London by Gen. Sir H. Lefroy, R. A., F. R. S., on the 3d of May, 1888.

The explanation of the plate in Collens's Guide containing one of the objects photographed by the author (see also accompanying plate LXXXV, *b*, *b'*, *b''*), is also instructive regarding the likeness of Trinidad aboriginal pottery to the Porto Rican. The illustrations that appear on the former plate are accompanied by the following explanation:

> Figure 1. A hollow stone, smooth in the concave part, forming a rude mortar. The Indians used a hard smooth pestle for pounding their seeds and grains.

[a] London, 1888.

Figures 2, 3, and 4. Heads of animals in burnt clay, more or less grotesquely shaped. The eyes and mouth are often exaggerated, a few broad, bold lines serving to bring out the most striking features. In figure 4 the head of the monkey is fantastically crowned. All these are probably deities[a] or ornamental attachments to earthen vessels.

Figure 5. A well-shaped squirrel. Perhaps a toy whistle.

Figure 6. An earthen bowl in fine preservation, about the size of an ordinary vegetable dish. With the lid, which is unfortunately missing, there would doubtless be a good representation of a turtle; as it is, the head and tail are clearly, and the limbs somewhat clumsily, shown.

Of the specimens above described, that shown in *b*, *b'*, *b''* is the only one figured in this report, but different views of it are here given on account of its importance in comparative studies of Porto Rican material. Owing to the unusual nature of the decorations on its interior surface, there is added the illustration of a fragment (plate LXXXV, *a*), that is not described in the passage quoted above. This object is a platter of rough ware which, although broken, reveals enough of the decoration to show the general intent. It has the exceptional characteristic of being decorated on the inside surface, not on the exterior, the decoration consisting of figures in low relief alternating with scrolls and circles in intaglio. The rim of the platter bears rounded elevations that are decorated with incised circles.

In *b* is represented the turtle-shaped vessel referred to as figure 6 of the above quotation. The three views of the object, from the side (*b*), from the top (*b'*), and from the front (*b''*), bring out clearly the turtle form, especially well-marked in the head.

In addition to ceramics, of various shapes and degrees of excellence, the Antilleans made many other objects of burnt clay, some of which are represented in plate LXXXVI. Specimen *a* is a clay cylinder,[b] the surface of which is covered with geometrically arranged grooves and ridges. This object was probably used as a roller to imprint on other objects the figures it bears, as, for example, on clay vessels before they were fired.

The circular clay stamp, both faces of which are shown, *b* and *b'*, has circular grooves broken at certain points, similar to the characteristic geometric decorations already noted. The appearance of the reverse side (*b'*) suggests that it formerly had a handle (now broken) attached to the middle.

Illustration *c* represents a stone object in the Latimer collection that was figured by Professor Mason in his catalogue, to which reference has been repeatedly made. On the side opposite that here figured there is a depression of rectangular shape extending toward the periphery from the central hole and so situated as to serve as a slot for attachment to a stick, suggesting that the object was part of an ancient spindle.

[a] There is great doubt of the validity of this suggestion. [b] Similar objects occur in Mexico.

Shell and Bone Carvings

The Porto Rican aborigines were expert in carving bone. Several beautiful specimens of their work are in the Smithsonian collection. They made also celts or chisels from shell and used bright nacreous shells for eyes for their idols. Shells were used also for beads and for bodkins and needles. Several carved-shell objects of unknown meaning and use are in the several collections that have been examined.

On coral islands, like Barbados, where hard rock available for implements is scarce, shells almost wholly replace stone for implements, and large collections of shell axes occur. The shell generally used for this purpose is the common conch, the lip of which is particularly solid, often semifossil.

Specimen *a*, plate LXXXVII, is a string of stone beads, to the end of which is attached a shell object of curved shape perforated for suspension, and ornamented at both ends. This pendant was found in the bowl shown in *a* and *a'*, plate LXXVII, attached to a string of beads, and was evidently a mortuary offering.

The object represented in *c*, plate LXXXVII, is made of shell, but for a purpose that is not wholly evident. It was purchased in Santo Domingo in the Archbishop Meriño collection. Illustration *b* represents shells that were excavated by the author from the floor in the Cueva de las Golondrinas, and, although they are artificially worked, their use is unknown.

There is an ornament made of shell in the Imbert collection in the form of a carved plate, its surface decorated with an incised circle surrounded by triangles in the corners.

The finest example of Antillean shell and bone carving in the Smithsonian collection, obtained from Archbishop Meriño, is a manati rib with a figure cut on the handle, the only one of its kind known to the author. This specimen is represented in a side view in plate LXXXVII, *d*. The shape of the shaft practically follows that of a rib, flat on the concave, rounded on the outer side. The edges and the end opposite the handle are rounded.

One edge of this object is stained green throughout its length, probably by guano or other chemical agents in the floor of the cave where it was formerly buried. The most remarkable example of carving is in the handle, where there is a representation of a kneeling figure bent slightly backward to conform with the natural curvature of the rib. When seen from the side, it will be noticed that the right arm is flexed forward, bringing the hand to the breast, and that just below the shoulder there is an ornamented armlet. The legs have small tubercles on the outside of the ankles and ornamented anklets. The forehead is much flattened, the ears are prominent, the eyes large and circular. The front view (*d'*) shows that the left hand is not bent to

the breast, but extended to the abdomen, and that it is turned outward, with the fingers closed on the palms. The umbilicus and genitals are in evidence, and a projection on the head resembles a cap.

The back view (*d''*) shows little in addition to that already noticed except a backbone formed by a row of five rectangles, each with a central pit, corresponding to the vertebræ. The soles of the feet appear on this side, and the toes, like the fingers, are turned backward over depressions that represent the bottoms of the feet. The whole object is supposed to be a vomiting stick, one of those mentioned by Gómara and certain other early writers, that were used to help the priests to vomit before they entered the presence of their idols. Wooden sticks believed to have been used for the same purpose will be considered later.

The object figured *e*, from the Smithsonian collection, is likewise a fine example of Porto Rican shell carving. Although too small to be worn, this object has the general appearance of a mask and may have been attached to the forehead. It was evidently tied or attached to some foreign object or used as a pendant, as the holes in the rim show. The face is well cut, eyes, nose, and especially the teeth, being carefully done. The folds under the chin were evidently intended to represent appendages, as arms, all resemblance to which is lost.

Illustration *f* represents a well-carved shell object, acquired like the preceding, from Archbishop Meriño. It is apparently one of those amulets that warriors attached to their foreheads when they went into battle. Two parts are distinguishable—a shaft and a head, the latter being united to the former by a short neck. The mouth is large, with teeth well carved; the lips are small; the chin is absent. The nose is prominently curved, but of the flat type elsewhere commented upon; the eyes are large, round, with orbits in which foreign objects were formerly cemented. The forehead is wanting; the ears are far back on the head. Seen from the front, the face is narrow and ears are prominent. The shaft is irregularly rectangular when seen in profile, and perforated and notched on top and front. The surface opposite the neck is very smooth. This is one of the finest known specimens of Antillean shell carving.

Specimen *g* also is a finely carved bone representing a seated figure with the hands on the knees. The back is plain and smooth, with a perforation for suspension just behind the narrow connection between head and body, a region that is not the neck but the lower jaw, upon which are markings representing the teeth. The eyes are shallow concave pits; the ears in prominent relief. There is a representation of a crown with feathers on the head. From comparison with other objects, and from the fact that the eye depressions have a rough surface, it is probable that gold nuggets were formerly inserted in these sockets to represent eyeballs.

Wooden Objects

CASSAVA GRATERS

The aborigines of Porto Rico were essentially agriculturists and raised great quantities of manioc, the root of which was eaten after having been ground and the poison extracted. The meal of this root, made into cassava bread, was the food of the islanders, as it was universally used by the West Indian aborigines. Its use as a food is still common among the poorer people, and the processes of manufacture now followed are practically the same as those employed by the prehistoric people, except that a metal plate has been substituted for the former frying stone, and the implement used in grating the root is now made of iron instead of wood. Cassava meal and bread are still sold in market places all over Santo Domingo and in Porto Rico, and cassava sieves and strainers are objects in common use. No aboriginal cassava graters have been collected in Porto Rico, but a few were seen in collections in Santo Domingo, and there is every probability that these implements had practically the same form in the two islands. Señor Desangles of Santo Domingo has one of these ancient cassava graters, and there is another owned by Señor Cambiaso, of the same city. The Smithsonian Institution has another specimen from Haiti.

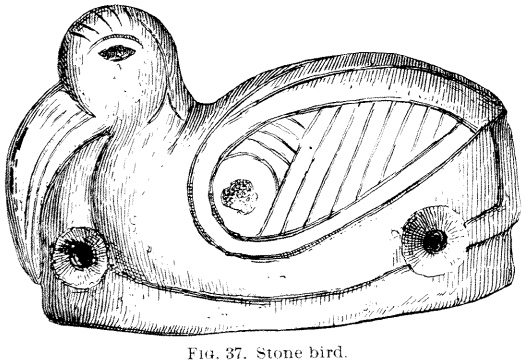

Fig. 37. Stone bird.

These graters were flat or slightly curved boards, sometimes having handles, with the surface covered with sharp stones, often set in geometrical figures, fastened by means of vegetable gums. It is said that stone graters were sometimes used, but none of these exist in the collections examined, although there are rubbing stones without attached sharp stones that may have served the same purpose as the more ornamental graters.

DANCE OBJECT

Mr Yunghannis of Bayamon, near San Juan, Porto Rico, has in his collection a stone object which shows good evidence that it was attached to a staff and carried in processions or dances.

This unique specimen, figure 37, represents a bird without legs, but with head and well marked wings. It has a flat, slightly curved base and was apparently bound to a stick by strings passing through holes near the rim, as is shown in the figure.

IDOLS

Small idols or amulets, as has been already mentioned, are said to have been tied to the foreheads of warriors when they went to battle, but it is not impossible that some of the larger idols may have been attached to the top of the head in much the same way that this bird figure is represented on the head of a four-legged animal carved on the end of the staff shown in plate LXXXIX, *b*, *b'*.

In *a* of this plate is represented a carved stick purchased from Señor Neumann and said to have been found in Porto Rico. This object is not believed by the author to have been made by the prehistoric aborigines of Porto Rico, but the incised work on the crook and upper part of the handle is thought to be Antillean. The lines clearly show the use of a steel knife or other metallic implement introduced by Europeans, while the cutting of the ferules and grooves point the same way. The object in question was probably an Indian planting stick or dibble, called by the aborigines a *coa*, but not necessarily made before the advent of the Spaniards.

The wooden turtle shown from the side and the back in plate XC, *a* and *a'*, collected by Mr F. A. Ober, is a fine specimen of the Antillean wood carving. Mr Ober speaks of this object in his Aborigines of the West Indies, as follows:

> In this connection I may be pardoned for alluding to my own "finds," in these islands, some one hundred specimens having been sent by me to the Government Museum at different times. One of the most unique was a figure of a tortoise, carved from hard wood, which was found by me in a cave near St. Vincent in 1878.

When seen from the side, the head of this turtle appears to extend considerably beyond the plastron and carapace and its throat and sides, especially behind the eye sockets, are covered with a carved imitation of scales, consisting of a series of incised lines crossing one another. On the top of the carapace rise two prominences, which, as can be seen in the back view, are pierced with perforations that extend through the body. When we examine the back of this turtle (*a*), we not only find the two perforations above mentioned, but also discover that the surface of the carapace is decorated with incised lines, ridges, and ovate figures. The fore and hind limbs of the animal appear in this view as prolongations from the sides of the body, extending a short distance beyond the rim of the carapace. The animal's nostrils are represented by shallow pits on the upper side of the pointed snout. Whether this image was an idol or an amulet is not clearly determined, but the two ventro-dorsal perforations suggest that it was tied to or suspended from some other object, possibly attached to some part of the human head or body or worn as an amulet. Stone turtles are known in one or two collections from the West Indies, but they

are not perforated and were probably idols rather than fetishes. From the statement that the wooden turtle was "found in a cave near St Vincent" a locality not clearly defined, this object may be associated with Carib people, who were the last aborigines to inhabit the Lesser Antilles, but it may have been made by an antecedent race which these people replaced.

The following legend of the origin of the turtle is recorded by Ramon Pane:

> Caracaracol going into the house of Aiamavaco asked some cazzabi of him, which, as has been said, is bread. He clapt his hand on his nose, and threw on him a Guanguaio, full of Cogiba, which he had made that day. . . . . After this, Caracaracol returned to his brothers, and told them what had happened to him with Baiamanicoel, and the stroke he gave him on the shoulder with the Guanguaio, and that it pained him very much. His brothers look'd upon his shoulder, and perceiv'd it was much swollen which swelling increased so much that he was like to die. Therefore they endeavored to cut it open, and could not; but taking an instrument of stone, they opened it, and out came a live female tortoise; so they built their house, and bred up the Tortoise.

One of the finest examples of Antillean wood carving known to the author was seen in the city of Puerto Plata, Santo Domingo. It represents a serpent. The lateral view of this object (plate XC, *b*) shows the ornamentation of the body and head. The wooden serpent has a single coil and is made from one piece of hard black wood, the head and most of the body being decorated with incised circles, triangles, and parallel lines. The arrangement of these decorations may be seen on examination of the illustration, reproduced from a hurried sketch made by the author a short time before leaving Puerto Plata. The end of the tail is smooth and much flattened, but the whole surface of the belly is carved to indicate a series of overlapping scales, beginning at the throat. Pieces of gold, shell, or some precious stones were evidently inserted into the eye sockets, where there still remain fragments of the material by which they were attached. Along the back of the image there is a row of five incised circles, the first of which is situated on the upper part of the head. This specimen could not be purchased by the author, but it is to be hoped that it may be acquired later by some museum, where it can be examined by ethnologists and more detailed drawings of it published.

The early writers speak very explicitly of the use of wooden idols by the aborigines of Haiti and, as several of the objects have been preserved to the present day and are available for study, we can form an idea of their form and general appearance. So far as the author knows there is no wooden idol of the Borinqueños in existence; but, as the culture of prehistoric Porto Rico was similar to that of Haiti, we may reasonably suppose their idols were similar. Wooden idols from Jamaica, Turks island, and Cuba are known. In general

features there is a remarkable uniformity in these idols, which naturally supports the inference that those of Porto Rico could not have differed very greatly from objects of this kind in the other West Indian islands.

These idols are, as a rule, made from single pieces of wood, as the legends state, either a log, root, or branch, in no instance of two parts united. Although many of them are now partially eaten away by white ants or other insects, rendering their surfaces rough, the indications are that they were once smooth and covered with a superficial varnish or paint. The majority are made of very hard wood, but one or two are of soft wood, such as is easily worked with stone implements.

These wooden images are generally found in caves or other places where they were best protected from destruction and where ancient rites and ceremonies were probably held. Considering the time that has elapsed since they were in use, it is remarkable that many of them are so well preserved. It is not certain that all of the smaller wooden idols are Antillean.

Idols were brought to America from Africa when negro slaves were imported to replace the Indians who had succumbed to the cruel treatment of the Spaniards. The author has a photograph of one that closely resembles the wooden idols from Easter island. Similar images were known to have been carried to the guano beds on the Peruvian coast by enslaved Easter islanders, and one of these idols may have come by the same means to the West Indies.

The author has not seen the three wooden idols (plate LXXXVIII, part 1, *g*, *h*) from Jamaica that will first be considered, but finds the original figures and descriptions of them by Doctor Duerden[a] so instructive that he quotes therefrom at length, as follows:

> In the last number of the Journal [of the Institute of Jamaica, 1896] is a facsimile reproduced on the previous page, of an engraving in Archæologia (1803) of three Jamaica wooden images in the British Museum. With regard to these the editor supplies the accompanying details: "In 1799 they were exhibited at the Society of Antiquities, London, and the following account appears of them in the appendix to "Archæologia," vol. 14, 1803, p. 269, April 11, 1799.
>
> Isaac Alves Rebello, esq., F. A. S., exhibited to the society three figures, supposed to be of Indian deities in wood, found in June, 1792, in a natural cave near the summit of a mountain, called "Spots," in Carpenters Mountain, in the parish of Veve[b] in the island of Jamaica, by a surveyor in measuring the land. They were discovered placed with their faces (one of which was that of a bird) toward the east.

In commenting on the figurines, Doctor Duerden calls attention to the presence of constrictions on legs and arms and quotes Doctor Chanca's letter referring to a habit of the natives of the island of

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[a] Aboriginal Indian Remains in Jamaica, *Journal of the Institute of Jamaica*, vol. 2, no. 4, July, 1897; Jamaica Wooden Images in the British Museum, *ibid.*, no. 3, 1896.

[b] Carpenters mountain is now included in the county of Manchester, created in 1870.

Guadeloupe of wearing "two bands of woven cotton, the one fastened around the knee and the other around the ankle; by this means they made the calf of the leg large and above-mentioned parts very small." Both Doctor Duerden and Professor Mason have pointed out the presence of these bands in the wooden idol figured by the latter.

When the images from Jamaica are compared with others it is found that the former present several significant characteristics, one of which is a wooden canopy over the head suggesting similar appendages in certain wooden idols from Santo Domingo. This canopy may be either an extension from the head or mounted on a special support free therefrom. Apparently the first of these images is represented as seated on a rudely carved stool, or *duho*. Another of these Jamaica wooden images, that with a bird's head (plate LXXXVIII, part 1, *f*), differs completely from others; it is to be hoped that, on account of their exceptional forms, some ethnologist may publish later more detailed descriptions of these objects.

One of the best-known wooden idols from the West Indies is owned by Señor R. A. Imbert, of Puerto Plata, Santo Domingo, who has one of the finest collections of Indian objects from the island, which he has generously permitted the author to study, affording every opportunity to take notes and make photographs. This wooden idol is represented in plate XC, *c*–*c*''.

In Señor Imbert's manuscript catalogue of his collection is an account of this idol of which the following is a translation:

> No. 16. Wooden Indian idol found in a cave in Loma Sucia, near Ysabella, by Juan Pedro Villaman, and obtained in 1899 by R. A. Imbert. This idol is made of guacan wood; measures 86 centimeters from the cap to the helmet. The upper part of the helmet appears to have served for sacrifices or for burning resins. On the back part of the head one notes a hole that appears to indicate that the idol was a speaking image, like either the Mexican or those of the ancient Egyptians. Half the teeth are similar to a piece of shell of the plastron of a turtle, the other half could not be found. Cavities which form the eyes are full of resin, and one can likewise see in them some fragments of a marine shell that adheres to the resin. In certain regions of the idol one can see a thick varnish that protected the whole of the object. Everything indicates that this idol was imported from the north or was made by a race more advanced than that which Columbus found in the island of Santo Domingo in 1492. At all events the object was made anterior to the epoch of the discovery.

The Imbert idol represents a half-seated figure of large proportions, the head well sculptured, the arms and legs free, the hands resting on the knees. The head is surmounted by a mushroom-shaped wooden canopy, and the base of the idol is enlarged into a kind of pedestal. The whole surface of the image appears to have been covered originally with a black glaze of a resinous substance that still adheres to the surface in several places, although the exterior, especially the base, is now considerably worn and eaten by ants or other insects. The

eyeballs have been removed, but it is evident from fragments in the resin which still adheres to their sockets that they were made of shell and have been torn from their former attachments. The chin, face, and breast show the least wear, the varnish in these regions being black and glossy. One-half of the mouth is occupied by a piece of shell, upon which are carved the teeth; the other half shows only a comparatively deep cavity and is destitute of inserted shell. There is a cavity within the head with an opening at the back with which a tube once apparently communicated. This image may well be considered one of those idols that the Indians consulted for oracular purposes and from which they are said to have received responses.

Probably the priest who gave these replies was concealed somewhere near and spoke through a tube that communicated with the cavity of the head. In some of the early writings it was said that on one occasion the Spaniards, having destroyed an image and its paraphernalia, detected and exposed a deception of this kind.

Few specimens of these idols with hollow heads exist in collections, although it is probable that some of the known stone masks, especially those with perforated mouths, may have been heads of similar images.

One of the most complicated wooden idols from the West Indies is shown in *a* and *a'*, plate XCI; this was first described and figured by Professor Mason, who writes:

> This carving represents two individuals seated on a canopied chair. The whole thing is interesting to the highest degree. The chair has a high back ornamented with scrolls and concentric rings. Both individuals have embroidered skullcaps, the nearest approach to which are the basket-work, close-fitting embroidered hats of the Indians of the Great Interior Basin of the United States. The ears, much distended, are to be looked for. The most noteworthy feature, however, is the bands of embroidered cotton just above the calves. In his second voyage, cruising among the Caribbee Islands, Columbus came on the 10th of November, 1493, to Santa Cruz Island. Here he had a fight with some natives in a dugout and wounded some of them. The hair of these savages was long and coarse, their eyes were encircled with paint so as to give them a hideous expression, and bands of cotton were bound firmly above and below the muscular part of the arms and legs so as to cause them to swell to a disproportioned size. (Irving's Columbus, I, 333.) Height, 31 inches.

Professor Mason accompanied his description of this idol with two good figures that have been repeatedly copied by later writers. The two new figures of the idol under consideration are reproduced from the original, one (*a'*) a view from the side and the other one (*a*) from the front, showing certain features not clearly brought out in previous illustrations.

In its general form and ornamentation the stool on which these figures are seated resembles the Antillean seats called *duhos*, specimens of which from Turks island and Santo Domingo are mentioned later in this report. This seat was once elaborately decorated, especially on the back, where parts of the former ornaments are still clearly seen.

It must not necessarily be supposed that the natives drew up their legs in the way shown in the wooden idols occupying these stools, for, owing to the small size of these seats, such a position would have been impossible.

These figures were undoubtedly idols worshipped by the aborigines of the island upon which they were found. They probably stood in niches in caves or in special houses dedicated to them.

The twinning of idols in one figure recalls statements of early authors that the great deity of the Haitians had two attendants to do her bidding. The author of this paper has referred to a twin amulet from Santo Domingo and has heard of an image of clay composed of two united idols. All these figurines evidently represent the same or a very similar conception in Antillean mythology.

The wood of which this idol is made is so eaten in parts by insects that its surface is riddled with holes and has been so exposed to the elements that any varnish or resin with which it was once covered has almost wholly disappeared.

It is not known whether another idol formerly stood on the raised canopy above the twin figures; if so, it may have represented the great Earth Mother of the Haitians, mentioned earlier in this report, who is reputed to have had two servant gods.

In his report on the Guesde collection, Professor Mason describes another wooden idol, shown in plate XCI, *b* and *b'*:

> A human figure carved from a single log of wood. The portions broken away render it impossible to tell how large the image was originally and what position the figure occupied. Especially noticeable are the ear plugs and the bands drawn tightly around the muscle of the arm. Length, 43 inches.

These objects, according to Mr F. A. Ober, were found in a cave near the ruins of Isabella, the first city founded by Columbus, on the north coast of Santo Domingo. He writes:

> I saw the old negro who discovered them, some years ago, and he described their position and the great fright they gave him. . . . They were placed in a niche beneath an overhanging rock, at the entrance to a deep cavern, and doubtless they had remained for at least four hundred years—since the advent of the Spaniards—and how much longer no one knows.

An examination of the last-mentioned wooden idol brings out significant details. The canopy is here attached to the top of the head instead of arising, as in the twin idol, from the stool. The fillet over the forehead is decorated with parallel incised lines that are broken at intervals, following a design constantly occurring in Antillean geometrical decorations. The ferrules surrounding the upper arm, resembling armlets, represent woven cotton bands. It is highly probable that in making this image the intention was to represent an animal's body with a human head. Its normal position is with the body, not upright, but slightly inclined, as indicated in the plate. This object is one of

those *zemis* to which reference is made in early accounts as having been made from a branch of wood or the trunk of a tree.

The author has figured in his account of *zemis* from Santo Domingo another wooden idol, figure 38, with a canopy over the head and an ornamental band on the forehead. The arms are enlarged at the elbows, and the hands resemble feet, with their palms turned outward. This image stands on an enlarged base, both idol and base being cut out of the same log of wood.

FIG. 38. Wooden idol, Santo Domingo.

STOOLS

Duhos, or stools made of stone or wood, were common in the houses of the caciques. These objects, consisting of seats supported on four short stumpy legs, generally represented animals, and a head was carved at the upper or lower end. The forelegs often had depressions in the shoulders, in which may have been inserted stones, shells, or nuggets of gold. The upper surface of the seat, especially the back, was sometimes decorated with designs recalling those of collars and idols, consisting of spirals, circles, triangles, or parallel lines.

These stools were probably used both secularly and ceremonially, serving at times as seats of honor in the house of the caciques, who themselves occupied *duhos* on state occasions. The dead were often placed upon similar seats,[a] and certain clay images already described had imitation *duhos*, as has been pointed out. The great care given to the decoration of stools shows how highly they were esteemed.

A few specimens of these seats have been found in Porto Rico, among which may be mentioned one now in Mayaguez and another in Santurce. The Smithsonian collection has two from this island, and two from Turks (Caicos) island (plate XCIII).

[a] Dr Liborio Leida, Eldorado: Mummified Body in Cist. See im Thurn, *Timehri*, I, 271.

The first mention of the use by the West Indians of chairs of state occurs in the diary of Columbus[a] published by Las Casas. Rodriguez de Xeres and Luis de Torres, the latter familiar with the Hebrew, Chaldean, and Arabic languages, were sent by the admiral to visit an Indian town in Cuba and interview the ruler, supposed to be the Grand Khan, whose territory Columbus thought he had discovered. This embassy penetrated 12 leagues inland and visited a village of about 50 houses, where it was received with great solemnity by the natives and escorted into one of the largest houses of the pueblo. The Indian chiefs took the envoys by the arms and led them to two seats, "sillas," in which they sat, while the natives occupied seats about the Spaniards.

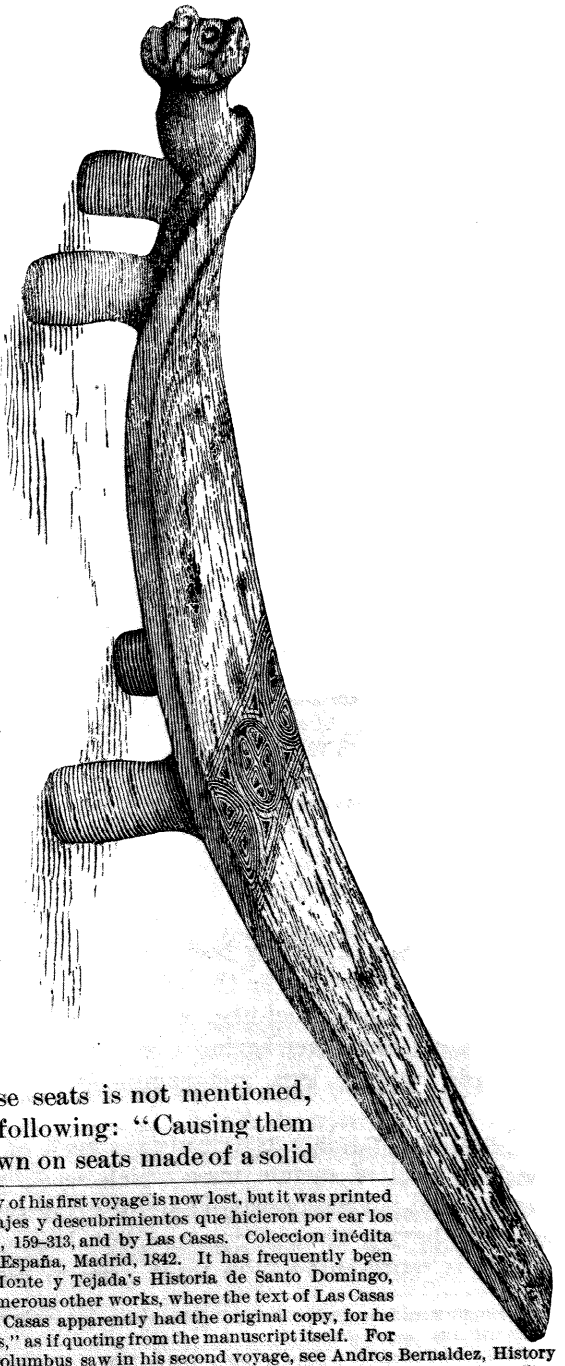


FIG. 39. Wooden duho, side view (from Mason).

Although in the account given by Las Casas the form of these seats is not mentioned, Herrera introduces the following: "Causing them [the Spaniards] to sit down on seats made of a solid

[a] The original of Columbus's diary of his first voyage is now lost, but it was printed by Navarette, Coleccion de los Viajes y descubrimientos que hicieron por ear los Españoles desde fines del siglo XV, 159–313, and by Las Casas. Coleccion inédita os para servir por la Historia de España, Madrid, 1842. It has frequently been republished, as, for instance in Monte y Tejada's Historia de Santo Domingo, Doctor Cronau's Amerika, and numerous other works, where the text of Las Casas is often somewhat abridged. Las Casas apparently had the original copy, for he repeatedly notes "the admiral says," as if quoting from the manuscript itself. For references to the Indians whom Columbus saw in his second voyage, see Andros Bernaldez, History of Ferdinand and Isabella, and the letter of Doctor Chanca to the Municipal Corporation of Seville.

piece of wood in the shape of a beast with very short legs and the tail held up, the head before, with eyes and ears of gold." As Professor Mason has shown, the wooden seats which were sent to the National Museum by Mr Gabb "are facsimiles of those spoken of by Herrera." It is probable that the stools or seats were chairs of state and that the two Spaniards, being regarded as supernatural personages, were led to these seats on that account. These *duhos* were regarded in a way as sacred and were highly prized, although, according to Herrera, sometimes given to the Spaniards as tribute.

Many references to the use of seats called *tureys* among Orinoco and other South American tribes might be quoted from early writings, but one or two will be sufficient to show their similarity to those of the West Indian aborigines. Gumilla writes of the Guayquiries, one of the poorest of the Orinoco tribes, which since his time has disappeared, that their houses had no furniture except hammocks, and seats "roughly made of solid logs of wood and called *tureys*." [a]

Mr im Thurn mentions the use by the Indians of Guiana of similar wooden seats and points out their resemblance to those used by the aborigines of the West Indies. He thus describes these wooden stools of the Guiana Indians:[b]

> Next in importance among the wooden articles made and used by the Indians are the low seats or benches common in their houses, which are also hewn in spare moments from solid blocks of wood. The very desirable object of these seem to be to raise the hams of the Indian, when sitting, out of the reach of the jiggers which usually abound on the floors of the houses, and are painful enough when they enter the flesh of the feet, but are far more inconvenient in other parts of the body. These benches are from 6 to 10 inches high, and they are often so carefully scooped out and shaped to fit the body of the sitter that they are as comfortable as any cushioned stool could be. They are often formed into grotesque figures of tortoises, frogs, armadillos, alligators, and other animals. One in the Christy collection, which, though not from Guiana, is Carib, is in the form of a man on all fours, the middle of the back forming the seat. Bright-colored seeds, and occasionally pebbles, are inserted to represent the eyes.

The *duhos* or *tureys*, by both of which names the aboriginal seats or stools were designated by the aborigines of Porto Rico, were of two types, one flat and stool-like, without back, but horizontal with short, stumpy legs, the other having a curved back, rounded to fit the body, also with stumpy legs, and commonly with a carved head on the lower rim.

The first type (plate XCII) is always made of stone and has been considered a kind of metate upon which seeds, pigments, or even maize were ground. This consists of a slightly concave stone slab of small size, generally having scanty decoration, but always with legs. One of these objects is represented from three sides in plate XCII, *a*, *a'*, *a''*. The

[a] This same word is applied at present by the country people of Porto Rico to a characteristic chair that is still used among them.

[b] Among the Indians of Guiana, p. 298, London, 1883.

author has seen two specimens of this type in Porto Rico. One of the best specimens of the type is owned by the well-known historian and teacher, Señor Cayetano Coll y Toste, of Santurce.

The other kind of stone *duho* from Porto Rico is represented in *b* and *b''*, which show one of these objects from side and front. In the side view, *b*, it is seen that the specimen has a low, curved back, reminding one of a hammock, crescentic form, short legs, and a turtle-shaped head. Such an object naturally calls to one's mind, as it did to that of the embassy sent by Columbus to the interior of Cuba, an animal of some unknown, but bizarre, form. The carving, well brought out in *b'*, is best seen on the back and consists of a rectangular figure in which is an incised ring with a central pit and a scroll on each side. The head on the lower edge reminds one of a turtle. One lower corner of the stone is broken; the other is occupied by a flipperlike extension, on which are parallel incised lines representing the toes.

This specimen is thus described by Professor Mason:

> It is a thin and deeply sagged slab of grayish sandstone and stands on four short legs. At the less elevated end three projections are neatly carved to represent the head and forefeet of a turtle. The eyes are deeply sunken, as if for the insertion of pearls or jewels. The higher end is abruptly elevated about six inches, and is crossed by a band ornamented with a scroll, which occurs with certain modifications on other objects. There is a decided warping or twist in the upper surface, the ornamentation of which, as suggested by Doctor Rau, renders the idea of its having been a metate doubtful.

The *duhos* with high backs, whether of stone or of wood, may be divided into two types. In the first type there is a head carved on the upper end of the back (plate XCIII, *a–a''*), with a representation of sexual organs, in place of a head, on the lower edge or front margin of the seat. In this type the figure is represented as lying on its back, the concave portion being the abdominal region. Two specimens of this type are known, one of which, made of stone, is in the Guesde collection, the other (*a–a''*), made of wood, is now owned by the heirs of Doctor Llenas, of Santiago de los Caballeros. The second type of high-backed *duhos* (*b–d*) represents an animal in a reversed position as compared with the first. The concave part represents the back; the head is carved on the lower or front margin of the seat, and the upper end of the back has no head, but resembles more closely the flattened tail of some animal. Whereas the two objects of the first type have a decidedly human cast of countenance, those of the second, in most instances, are more like turtles. This latter type is also made both of stone and of wood. Three specimens of this type are mentioned and figured by Professor Mason, and there are two in Santo Domingo, one each in the Imbert and Desangles collections.

A remarkable stone *duho*, figure 40, is figured and described by Professor Mason in his catalogue of the Guesde collection:

A stone stool or chair of the variety mentioned and illustrated in the Smithsonian Report, 1876, page 376. The material of those there described, however, is either sandstone or wood, and the device is some animal form. In Mr Guesde's specimen the material is a dark-brown volcanic stone and the device is the human form. Moreover, the position is inverted. The man is lying on his back with his feet drawn up to form the legs of the stool. His arms, without any attempt at accuracy of delineation, are doubled on his neck. The eyes and mouth are like the same features in all aboriginal statuary, and beautiful shells were doubtless inserted in them. The ears have large openings, in which were inserted plugs of wood, stone, shell, or feathers. The legs of the chair, just beneath the man's shoulders, are mere projections from the stone. The markings in the head and forehead are quite tastefully designed. The back does not slope upward as much as in the Latimer specimens. . . . Length, 16 inches; width, 6½ inches; height of head, 6½ inches; of feet, 2 to 3 inches.

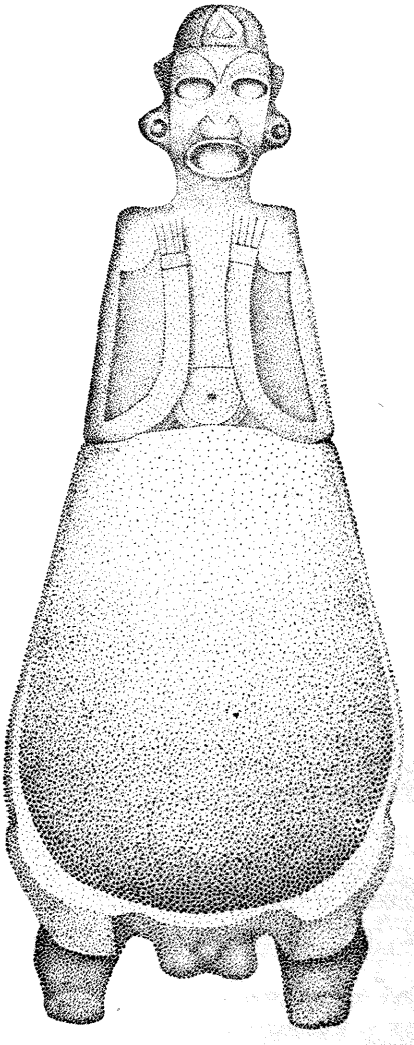


FIG. 40. Stone duho (from Mason).

An examination of a wooden seat (plate XCIII, *a*–*a''*), owned by the late Doctor Llenas shows a similar head on the upper end of the back, arms at the side, but no indication of a head on the lower end. It belongs to the same type as the preceding, where the curved surface represents the abdominal, not, as in other wooden or stone *duhos*, the dorsal region. This specimen is one of the best wooden seats seen by the author, and is exceptional in having a head cut on the end of the back. This head has eyes, mouth, and ears well represented and is ornamented on the back (*a''*) with incised circles, triangles, and straight lines. Unlike some of the other *duhos*, it is a comfortable seat and is in a good state of preservation. Attention is called to the small tubercle on or near the ankle of

each front foot, a feature that has already been noted in considering some of the wooden idols.

Plate XCIII, *b*, represents another *duho* from Santo Domingo, now owned by Señor Imbert of Puerto Plata. This stool, like the one next preceding, has a large head, which, is situated, however, on the lower end between the fore legs; its back is lower, the curve being an arc of a greater circle. The surface of the upper end of the back has no decoration, but on the side, at the point *a*, there is a spiral geometrical ornament that is enlarged in *b'*. The resemblance of this object to an animal with a human head is pronounced; its likeness to a seat more distant.

Another specimen of *duho* (*c*) from Turks (Caicos) island, is thus referred to by Professor Mason:

> Professor William M. Gabb has sent to the National Museum, with the joint compliments of himself and Mr D. R. Frith, of Turk's and Caicos islands, two wooden stools, facsimiles of those spoken of by Herrera. . . . These objects are made of a very hard dark wood, and are just fitted to an ordinary man when reclining as in a hammock, from which the pattern of a stool is possibly derived. These two specimens were found in a cave.

Representations of this stool, taken from Professor Mason's report, are to be found in *d*. They show that these specimens are very similar to those found in Santo Domingo and have like superficial ornamentation.

Professor Mason, in his catalogue of the Guesde collection, thus describes still another wooden *duho*, the third which he figures:

> A low wooden stool from Turk's island, collected by the late W. M. Gabb. This form is similar to those described in a previous publication, and referred to by the historians of Columbus. The ornamentation of the countenance of the human head are [is] best shown in figure 202[a] [Mason]. The labyrinthine design of the seat ornament, the scrolls, lozenges, and chevrons in the head ornaments are most praiseworthy. Length, 46 inches.

CANOES

The prehistoric West Indians were essentially a maritime people, and the insular Carib at the time of Columbus navigated from island to island with the greatest ease, using canoes which carried many men. So extensive were their voyages that there was probably not an island in the whole West Indies which they did not visit.

The sea voyages extended over 24 degrees of longitude, from Cape San Antonio, the extreme western end of Cuba, to South America. Martinique, which was a Carib island, is situated almost as far from the Florida Keys as Key West from Eastport, Maine, and the distance from Guanahani, the landfall of Columbus, to the lesser Carib islands by sea, following the West Indies, is greater than the length of the

whole eastern coast of the United States. Yet these aboriginal navigators made this long voyage, touching at island after island, extending their excursions to places situated farther from their homes than the Florida Keys are from New York.

The natives had canoes of several kinds,[a] which differed from one another in size and mode of construction. They navigated the inland waters and bays in small boats (figure 41), each of which would accommodate one or two men, but the canoes in which they went to sea were often large enough to accommodate a hundred or more persons. These canoes were manufactured by a people ignorant of the use of iron or of any cutting instrument except of stone. The larger canoes they made in the following way: They first chose a large tree and built a fire about its base to kill it, leaving the tree standing, that the wood might season. They then felled the tree, which they hollowed out with coals of fire placed along the log, and by means of "hatchet or wedge of a very green stone." This stone, Charlevoix observes, had never been found on the island, and the general opinion was that it came from the Amazon river. After the log had been hollowed out in this way by fire, supplemented by stone implements, it was buried in moist sand and staves were wedged in between the sides in order to spread them as much as the elasticity of the wood allowed. The two ends which were left open were then closed with triangular pieces of wood forming bow and stern. The log formed the bottom of the canoe, and the sides were built up with sticks and reeds, all fastened with fibers and pitched with gum to render the whole water-tight. These canoes were painted with bizarre figures and ornamented with carved images. In some cases they had awnings at one end. They were propelled by wooden oars (*nahos*) and are supposed by some to have had sails made of cotton cloth. The oar is said to have had a crosspiece at one end and a paddle at the other.

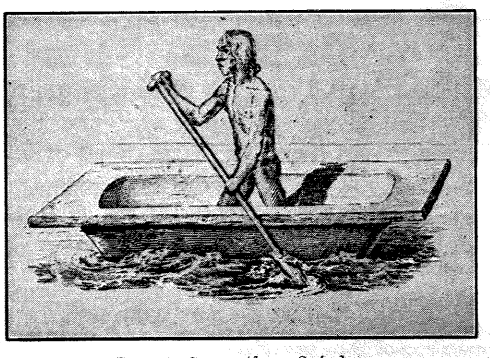


FIG. 41. Canoe (from Oviedo).

[a] Doctor Chanca states that the Borinqueños did not know how to navigate the sea. As compared with the Carib they were not a maritime people, but if their ancestors came by way of the sea they at least must have been intrepid navigators. Consult Dr Diego Alvarez Chanca, Letter to the Corporation of Seville (translation). In this letter Chanca gives an account of Columbus's second voyage and his discovery of "Burenquen," Boriquen, or Porto Rico. This letter was copied by Martin Fernandez de Navarette (I, 198) from a codex in possession of the Real Académia de la Historia, written in the sixteenth century. The copy of the Chanca letter used by the author is the reprint in Coll y Toste's Colon en Puerto Rico.

Although no specimen of an aboriginal canoe is known to have been preserved to the present day, it is probable that the canoes that put out to-day to the steamers, from Dominica and other islands, are to all intents and purposes of the same type, although not made in the same way, as the Carib canoes. One may see on the Ozama river, near the capital of Santo Domingo, many canoes not wholly unlike those manufactured in prehistoric times. Some of these modern canoes are of considerable size and are used to transport the produce of the interior of the island to the city. They may often be seen drawn up on the banks of the river near the old market place, surrounding the ancient ceiba tree, to which Columbus is said to have tied his boats.

The hollowed logs of wood shaped like canoes that are still used in the Yunque mountain region of Porto Rico for transportation of produce from the highlands to the plain may be survivals of ancient canoes, but in these no attempt is made to increase their capacity by building up their sides. There are reports that old Carib canoes have been found in caves of the smaller islands, but none of these have yet been seen or studied by ethnologists.

OTHER OBJECTS

The absence of stone arrow heads and spear points in all collections from the island of Porto Rico, frequently referred to by archeologists, argues that the bow and arrow were not used by the aborigines in warfare on this island. We have historical evidence that the Carib and also some of the tribes on neighboring islands had spears, and Samana bay in Santo Domingo received from Columbus its former name from that fact. The main weapon of offense among the peaceful people was apparently a wooden club, *macana*, but on some occasions the natives armed themselves with their *coas*, or planting sticks, weapons which were not to be despised. The author has seen several specimens of *macanas*, or war clubs, in Santo Domingo that were said to be aboriginal weapons. These are made of very hard wood and are sometimes knobbed at the end like a mace, sometimes smooth, not unlike the sticks called *cocomacacs*, still used by the Haitians.

Although the wooden handles in which the petaloid celts were inserted have not yet been found in Porto Rico, there is every evidence that they were formerly plentiful and that they were similar in form to the one found in a cave on Turks island by Mr George J. Gibbs and illustrated by Professor Mason in figure 12 of his catalogue of the Latimer collection. It is conjectured that these handles were finely made and decorated on their ends and surfaces. The specimen referred to has a knot and traces of carving on the extremity opposite that to which the petaloid celt was attached.

It is probable that a race capable of making wooden stools of the fine character shown in specimens described manufactured also many wooden implements and carved them with elaborate symbols. The beauty of carved wooden objects from Haiti is commented on by early chroniclers, especially those who recorded the visit of the Spaniards to the realm of Queen Anacaona.

Ceremonial paraphernalia, especially masks made of wood, are mentioned by the early writers. Few of these objects now remain. According to Doctor Cronau there is one in the capital of Haiti. Columbus received from a cacique a wooden mask with eyes, tongue, and nose of solid gold. Although no specimen of wooden mask from Porto Rico has been preserved, from the similarity of the aborigines of this island to those of Haiti and Jamaica it can hardly be doubted that the former, like the latter, were familiar with masks of wood.

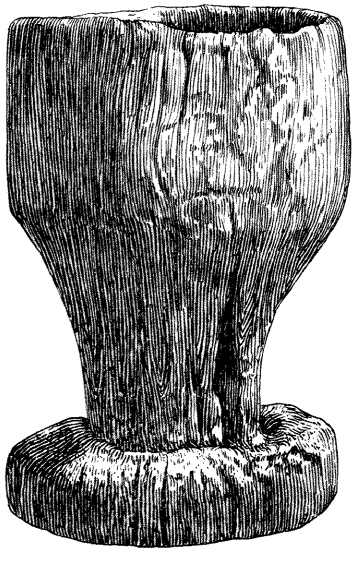


FIG. 42. Wooden mortar

The West Indian islanders accompanied their rhythmic *areitos*, or dances, with instruments, among which may be mentioned bells,[a] tinklers, rattles, and drums. They had likewise a hollow calabash with notches cut on the exterior, which, when scraped with a stick or stone, emitted a rasping, rhythmic sound for the step of the dance. A similar instrument is still used by street musicians in Porto Rico and other West Indian islands.

The aboriginal drum was made of a hollow log of wood, the form of which is shown in an illustration given in Oviedo. It is not unlikely that the drum employed in the African dances called *bombas* when held in the West Indies may be directly derived from this primitive drum of the aborigines, although it may have been imported from Africa.

Besides stone mortars and pestles the aborigines of the West Indies employed wooden implements for the same purpose. The shape of these wooden mortars was radically different from those of stone, and the wooden pestles are cylindrical, with a hand-hold midway in their length.

Wooden mortars (figure 42), apparently closely resembling those of the ancients, are common in some parts of the island, being used at the present day in grinding coffee. They are probably direct sur-

[a] The Antillean bells are said to have been made of wood.

vivals of the Indian implements having a similar form, while the pestles still used have doubtless the same antiquity so far as their shape is concerned. Wooden mortars and pestles of the same form are mentioned by Gumilla as still used by the Orinoco tribes, who employ them in grinding corn or other seeds. They are widely distributed over the whole of tropical South America.

Gold Objects

The aborigines of Porto Rico, unfortunately for them, were acquainted with gold. They obtained it in the form of nuggets from the sands of the rivers which rise in the high mountains and flow into the Atlantic, especially at the eastern end of the island, where gold dust is still obtained in small quantities by most primitive methods.

This gold was washed out in wooden pans, and nuggets were beaten into ornaments or cemented to the eyes, ears, and other parts of masks or the heads of their idols. The caciques wore flat plates of gold on their breasts, apparently as pendants, but not one of these escaped the greed of the Spaniards. They were traded for hawk bells made of base metal, which the Indians were glad to obtain in exchange. The precious metal was regarded by the natives in a more or less sacred light, and was never collected without preliminary fasts and purifications.

Gold was used for a variety of purposes besides ear or nose pendants. The cacique Guacanagari presented to Columbus a crown or headband of gold. The metal was employed not only in the decoration of masks, but also for adornment of other ceremonial objects, dance staves, and the like. The wooden seats cut in animal forms were inlaid with gold.

On the return from his second voyage Columbus held a formal reception at the Spanish court in which he decked out the Haitian cacique, Maniatex, brother of Caonabo, with a crown of gold which he had received from a cacique, and decorated his son with a chain of the same metal. The rest of the Indians are said to have carried gold masks, plates of the same material, and gold ornaments among which were beads as "large as nuts." Taking into account the general poverty of the Antilleans, it is probable that there was a considerable quantity of this metal in the possession of the natives at the time of the discovery, but all of this was greedily collected by the Spaniards, melted into bullion, and carried to Europe, so that in the various collections of antiquities there is not a single gold object of Indian manufacture from Porto Rico.

The great desire of the Spaniards for gold led the Indians to regard it as the god of the white man. A cacique named Hatuey, who lived on the eastern end of Cuba, wishing to retain a strict union with the

other caciques, in order to resist the Europeans, said to them that all defense would be useless unless they endeavored to propitiate the Spaniard's "god." "I know their god," he said, "who is more powerful than any other god. I know how to gain his power, and will teach you." He immediately brought them a basket full of gold objects and, showing it to the caciques, said: "There is the Spaniard's god. Let us celebrate a fête in his honor that he may look favorably on us." Immediately he smoked around the basket; then they sang and danced until they fell, drunken and exhausted with fatigue. On the next day Hatuey assembled the caciques at sunrise and said to them: "I have reflected very much over the affairs of which I spoke to you, and my mind is still unsatisfied; all considered, I do not think we shall be safe so long as the Spanish god remains in our midst. Wherever the Spaniards go they seek their god, and it is useless to hide it, for they have marvelous ways to find it; if you swallow it, they will disembowel you for it; the bottom of the sea is the only place where they will not go to get it. When we have no more gold they will leave us alone, for this is the only thing which makes them leave their homes."

The suggestion was thought to be an admirable one, and they threw into the sea all the gold they possessed.

BASKETRY AND TEXTILES

There are frequent references in early writings to the basket ware of the Antilleans, and there is every probability, judging from these statements, that their baskets were of fine quality. Baskets called *havas* were employed for many household purposes, as for straining the juice of the manioc in the manufacture of cassava; coverings for hammocks were made of basket ware, and offerings of cakes and bread were carried to the gods in baskets, which were laid on the top of a table of the same material.

The islanders used several kinds of plaitings in the basket work, which was said by the older writers to have been of great beauty and so closely interwoven with leaves that it was water-tight.[a] These *havas* were sometimes of spherical form and made in pairs to be attached to the ends of a stick which the Indians carried on their shoulders in such a way that the baskets balanced each other.[b]

Skulls of the dead were sometimes inclosed in basket ware. In a village not far from the ill-fated settlement of Navidad, in searching for the remains of the settlers, Columbus found, according to Doctor Chanca, a human skull wrapped in a basket, showing the existence

[a] A double woven basket with leaves between the two parts was used to hold liquids.

[b] Oviedo gives a figure of an Indian carrying baskets in this way, which is still practiced in Porto Rico.

of this burial custom among the Haitians. The Orinoco tribes preserved the skulls of their dead in the same way, according to early travelers.

The beautiful basket ware now made in the penitentiary at San Juan is worthy of mention in this connection. While there is nothing to prove that it resembles the ancient basketry, there is indirect evidence pointing that way. This kind of basketry resembles that still made by the Carib and related tribes. The basketry of the Carib of St Vincent and Dominica is well known.

The islanders made use of the fibers of several plants in plaiting basketry, among which may be mentioned the *cabuya*, *henequen*, and *maguez*. Cotton fiber was quite extensively employed for cloth, and feathers were artistically used in the manufacture of headdresses. These feathers were obtained from parrots and other bright-colored tropical birds, which were domesticated for that purpose. So highly prized were these birds that they were regarded as gifts worthy of the gods.

The hammock of the prehistoric Porto Rican closely resembled some of those still used by the tribes of the Orinoco and manufactured by Indians elsewhere in South and Central America. The character of the weaving probably varied in different islands. Hammocks of palm fiber are still made in the mountain regions of Porto Rico, especially on Yunque and neighboring sierras.

The Antilleans were familiar with native cotton and wore fabrics made from it, among which were the garments of the married women, called *naguas*, and the breechcloths of the caciques. Mention is made in the early accounts of cotton garments worn by the latter reaching below their knees, forming a kind of kilt.

The Carib and the Antilleans tied cotton bandages around their knees and elbows to increase the size of the calves of their legs and of their arms. The dead were sometimes wrapped in cotton cloth, and "cotton puppets," or effigies of stuffed cotton cloth in which the bones of the dead were wrapped, are mentioned in early writings. One of the best of these is figured in an article by the author in his pamphlet on Zemis from Santo Domingo and by Doctor Cronau in his work on America.[a] The author's figure was made from a sketch which did not bring out several essential features of this instructive specimen. On his visit to the city of San Domingo in 1903 he sought the original specimen, now owned by Señor Cambiaso, but as the former owner was away, he could obtain no additional information about it. The figure, which was found, according to Doctor Cronau, in a cave in the neighborhood of Maniel, west of the capital, measures 75

[a] Rudolf Cronau, Amerika: die Geschichte seiner Entdeckung von der ältesten bis auf die neuste Zeit, 2 vols., Leipzig, 1892.

centimeters in height. According to the same author the head of this specimen was a skull with artificial eyes and covered with woven cotton.

About the upper arms and thighs (figure 43) are found woven fabrics, probably of cotton, following a custom to which attention has been already called. There is a representation of bands over the forehead. The small projections or warts on the wrists and ankles are duplicated in some of the carved shell objects described in the preceding pages. It is much to be regretted that our knowledge of this figure, which could shed so much light on the mortuary rites and worship of the prehistoric Antilleans, is so imperfect. The author was told that it is now somewhere in Italy, but whether it is lost to science could not be learned.

FIG. 43. Zemi made of cotton cloth (from Cronau).

CONCLUSIONS

When we examine as a whole in a comparative way the archeological objects from Porto Rico and Santo Domingo, we find them quite different from those of North, Central, or South America. Types like the stone collars and three-pointed idols are not known to occur on the American continent, but are limited to Porto Rico and Santo Domingo, specimens which have been reported from the Lesser Antilles being readily accounted for on the theory that they were carried there by Carib or other wanderers. These types do not occur in Cuba or Jamaica and are great rarities in the Lesser Antilles, being practically unknown in such islands as Trinidad. It is believed that these stone objects are peculiarly Antillean and indicative of a characteristic culture stage in Porto Rico.

It is, however, equally evident that there is a likeness in some particulars between the prehistoric culture of Porto Rico and that of Venezuela, although the natives of the latter country had never developed a stage of stone working equal to that of the former. The germ of the island culture is therefore thought to have originated in South America, but to have reached a higher development in Porto Rico than in any other locality, except possibly Santo Domingo.

The evolution of a culture as complicated and characteristic as this demands time for its growth. It may have reached its zenith and have been on the decline when the island was discovered.

The territory inhabited by aborigines having an Antillean culture is insular, and according to well-recognized biological laws must have been peopled from neighboring continents. It is logical to suppose that prehistoric man, like the fauna and flora, was derivative rather than autocthonous on the island. Moreover, it is evident that when man came to Porto Rico he had advanced so far in knowledge of navigation that he was no longer in a primitive condition, but possessed culture sufficiently developed to make long voyages in seaworthy canoes, to fashion polished implements, and was otherwise well advanced in technic arts.

Another point is pertinent. His culture, as indicated by the prehistoric objects left on the island, was unique and characteristic. The most striking stone objects, as the stone rings found in numbers in both Haiti and Porto Rico, are different from objects occurring in either North or South America. It is evident from the time necessary to develop such culture that the ancestors of the islanders had lived for a long time in a distinctive environment before they went to the West Indies or had inhabited these two islands for a comparatively long epoch.

This culture, while peculiar to the West Indies, was not confined to any one island, like Porto Rico, for all the islanders have a certain similarity in manners, customs, arts, and languages, which has led us to call it by a special name, the Antillean, or Tainan, culture.

With these preliminary ideas in mind, it is evident that we are considering a race culturally identical, extending from Florida to South America, the northern limits of which are as near to North America as is its southern extension to South America. A portion of this race inhabited the eastern end of Cuba. There are three points where communication with the continent was possible and from which the islanders may have come: Venezuela in the south, Yucatan in the west, and Florida in the north. Each route of entry has had its advocates, and each presents strong arguments for acceptance by ethnologists.

Porto Rico lying, as it does, in the middle of a chain of islands, may have derived its first people from Haiti, the adjacent island, or from the Lesser Antilles. It is improbable that its first settlers came over the broad stretch of sea, north or south, or from Yucatan.

Both Florida and Venezuela have claims to be considered the route by which the earliest inhabitants of the West Indies passed from the continent to the islands. Each probably furnished a quota of colonists to the neighboring islands. It may not be possible to discover from existing data whether the first canoe load of aborigines which set feet on Borinquen landed at the east or the west end, but it is possible

to show that the characteristic culture of prehistoric Porto Rico resembled more closely that of South America than it did that of the southeastern United States, Central America, or Yucatan. In forming a conclusion we take into consideration the physiography not only of the fringing coast of the adjacent portions of the continents, but also that of the inland regions, which could be visited by chance visitors belonging to the Antillean race. That the littoral tracts of Florida and Cuba were inhabited by people with a culture like that of the prehistoric islanders[a] is a legitimate inference from the maritime habits of both, which imply frequent visits to these shores. If the culture of all the West Indian islanders were related to that of dwellers on neighboring continents, we should expect that the similarity would extend beyond fringing coast populations far inland, where relationships have not been detected.

It can hardly be said that a likeness to the Antilleans reaches far into the interior of Yucatan or Florida, for there was little in common between the Maya race as a whole and the people of prehistoric Porto Rico, nor have the last mentioned any kinship with the Indians of Georgia or central Florida. Art designs are apparently more widely distributed than blood relationship.[b]

If now we turn to the gateway at the south, to Venezuela and the north coast of South America, we find cultural similarities reaching far inland, almost to the middle of the continent. Resemblances here are not confined to coast peoples but extend to the uplands.

The linguistic relationship, perhaps the strongest, allies the speech of the Antilleans with that of the widespread Guarano and Arawak races of the interior of Venezuela and Brazil. It would seem improbable that this extensive stock developed its language on islands and spread to the heart of South America; it is much more natural to believe that the language of the island population originated on the continent and spread to the islands.

When we examine the ancient stone implements we find another similarity between those of the prehistoric people of Venezuela and of the Antilles. Textile fabrics were alike in the two regions for the simple reason that the flora was similar. The discovery of a method of extracting food from a poisonous plant was not simple, but among both prehistoric Antilleans and Venezuelans it was known, and cassava was one of the main foods. It is improbable that this method could have developed independently; more likely it was derivative.

The Porto Ricans made wooden seats in the form of animals and inlaid the eyeballs and shoulders with shell. So do the tribes of the

[a] F. H. Cushing, Preliminary Report on the Exploration of Ancient Key Dweller Remains on the Gulf Coast of Florida. *Proceedings of the American Philosophical Society*, XXXV, no. 153, Philadelphia, 1897.

[b] W. H. Holmes, Caribbean Influences on the Prehistoric Ceramic Art of the Southern States. *American Anthropologist*, VII, 71, 1894.

Orinoco to-day. The mode of burial of some of the Venezuela tribes and that of the ancient Porto Ricans were identical. Similar methods of preservation of skeletons or human skulls in baskets were adopted by both peoples; they were equally adept in canoe building; their houses were similar; and we might go on pointing out resemblance after resemblance, each new likeness adding in geometrical ratio to the probability of the identity of Antillean and Orinocan cultures. In the author's judgment these facts admit of but one interpretation—that the culture of prehistoric Porto Rico was South American rather than Yucatec or Floridian.

Of the many tribes of Venezuela to which the ancient people of Porto Rico may have been related the Carib may first be considered. At the time of the discovery this people had made excursions throughout the whole of the West Indies and had occupied the Lesser Antilles as far north as the island of Vieques and the eastern end of Porto Rico. That this vigorous stock came primarily from South America, where its survivors now live, there can hardly be a doubt, and that it originated there seems highly probable. In peopling the islands the Carib followed the same law of migration as the earliest inhabitants, their predecessors, and at the time of Columbus had already conquered the Lesser Antilles.

Of other peoples of the Orinoco akin to the prehistoric Porto Ricans it would be difficult to decide upon any one among the many tribes as the nearest kindred of the Borinqueños, but geographical, linguistic, and cultural conditions point very strongly to the Guarano, who once lived along the Orinoco and the coast of Venezuela and now occupy the delta of that great stream.

It may be theoretically supposed that the germ of the maritime culture of the island people preceding the Carib was developed on rivers—as the Orinoco and its tributaries—where environment made canoes absolutely necessary for movement from place to place. This fluviatile culture, the product of necessity, easily becomes maritime, and when once it had passed into this stage the peopling of the adjacent islands was an inevitable result. It does not appear that environment in the southeastern parts of the United States was adequate to develop a fluviatile culture of great development, certainly not to the extent that was found on the Orinoco, nor were conditions and necessities favorable to it. Life on the Orinoco was specifically a river life, and, with the means of river navigation, visits to the islands were what would be expected. Urged by their relentless foes, the Carib, the Orinoco people of more peaceful nature were driven to seek refuge in the delta or pushed out on the islands.

The South American origin of West Indian islanders is not accepted by all writers on these aborigines. The account which Davies gives of the Carib he derived from a certain Master Brigstock, an English

gentlemen who "had acquired the Virginia and Floridian languages and had spent some time in North America." The latter says the Caribbeans were originally inhabitants of that part of America which is now called Florida. But Davies's subsequent discussion of the question of the origin of the Carib shows that this opinion had little weight with him, for he advances arguments for the derivation of the Carib from South America.

According to Alexander von Humboldt, "the Caribs in the sixteenth century extended from the Virgin islands on the north to the mouth of the Orinoco, perhaps to the Amazon. . . . . Those of the continent admit that the small West Indian islands were anciently inhabited by the Arawaks, a warlike nation yet existing on the Main. . . . They assert that the Arawaks, except the women, were exterminated by the Caribs, who came from the mouth of the Orinoco."

According to Rochefort the Carib came from Guiana, and Edwards says that the Carib considered the islanders colonies of Arawak.

According to Brinton[a] "all the Antilles, both Greater and Lesser, were originally occupied by its members (Arawack stock), and so were the Bahamas." . . .

The argument for a derivation of the islanders from South America drawn from the nature of the food supply is one of the strongest.

"We have seen," says Ober, "that historical traditions point toward the southern continent as their ancestral abiding place: let us make another inquiry. Of the animals that constituted their food supply, nearly all the mammals were allied to species or genera of the South American continent. Such were the agouti, peccary, armadillo, opossum, raccoon, muskrat, the dumb dog (now extinct), perhaps the aico, the yutia, and alinique (of Cuba), and possibly, in the extreme south, a species of monkey. Add to these the iguana, which is peculiarly typical, . . . and we have their entire food supply of an animal nature."

The linguistic argument confirming the affinity of the ancient language of Cuba to South American, rather than to North American, languages, is well put by Lucien Adam, who says: "J'ajouterai que, sur 41 mots du taino ou ancienne langue de Cuba qu'il m'a été possible d'identifier, 18 appartiennent au parler des femmes Caraibes, 8 a l'Arrouague, 13 soit au Galibi, soit au parler des hommes, 3 au Cumanagota et au Chayma"—all of which, writes Torres, in a commentary on this passage, were languages of South America. If this be the true relation of the ancient Cuban tongue, the conclusion is logical that the language of the island Borinquen, which lies nearer South America than does Cuba, had the same relation.

[a] The Arawack Language of Guiana in its Linguistic and Ethnological Relations. *Transactions of the American Philosophical Society*, Philadelphia, 1871; The American Race, New York, 1891.

The various accounts which we have of the tribes of the Antilles indicate that the Indians of Borinquen were a composite race, a mixture of Arawak and Carib.

Davies writes: "But those who have convers'd a long time together among the savages of Dominico relate that the Caribbian inhabitants of that island are of the opinion that their ancestors came from out of the continent, from among the Calibites, to make a war against a nation of the Arouagues, which inhabited the islands, which nation they utterly destroy'd, excepting only the women whom they took to themselves, and by that means repeopled the island. Whence it comes that the wives of the Caribbian inhabitants of the island have a language different from that of the men in many things, and in some consonant to that of the Arouagues of the continent."

Whether the West Indies had a population antedating both Carib and Arawak is a question upon which little light can be thrown at present by archeology or ethnology. The resemblances between prehistoric stone work from Guiana and that from the islands would seem to connect the peoples of these localities, although there are some objects, like the stone rings, which are peculiar to the islanders.

It is difficult, perhaps impossible, properly to assign the place of Antillean culture among primitive men except in a comparative way, but that they excelled their neighbors in certain arts there can hardly be a doubt. The technic of stoneworking among them certainly equaled that of other American tribes, and was not far below the highest. To fashion the stone collars peculiar to them and to ornament their idols required both skill and industry. The smoothness of their stone implements, often made of the hardest rock, is unsurpassed, and their textiles were of a high order of merit.

That the race was inferior to that which built the great cities of Central America there is little doubt; but it was superior to people of contiguous regions of North and South America. The character of the stoneworking and the forms into which rock was cut are characteristic, showing a specialized culture, indicating long residence on the islands.

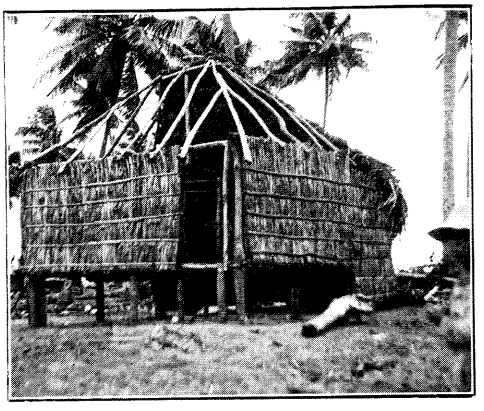
It is pertinent in the consideration of the peopling of the West Indies to give weight to the possibility that profound geological changes in the contours of the islands may have taken place since man first colonized them. Have the Lesser Antilles been geologically connected with South America in times so recent that man may have migrated to them dry-shod, or was Cuba continuous with North America at the time when the former received its first human inhabitants?

There is no doubt that the chain of islands, from Trinidad to Porto Rico, is of volcanic origin, and it is held by some geologists that the Caribbean sea, and possibly the Gulf of Mexico, constituted an inland lake in comparatively recent times. Well-marked changes of level

can be detected at present on several islands, showing that the configuration of this region is changing. The evidences we have of man's great antiquity on the North American continent are not decisive, but conclusive studies are yet to be made also in the very localities on the American continent, where man has probably lived the longest—the tropical parts of South America. We can not satisfactorily estimate how long the human race has been in the New World until careful investigations have been made as to the age of his remains found in the caves of Brazil, Venezuela, and the Antilles. Those who have investigated the subject claim great age for the remains of man in these regions. Climatic conditions, such as existed for instance in the glacial period, may have rendered the greater part of North America unfit for human occupation, but man may have lived in the West Indies when the whole northern part of North America was uninhabited and the Antilles were continuous land from north to south.

SKULLS FROM SANTO DOMINGO, SHOWING ARTIFICIALLY FLATTENED FOREHEADS (IMBERT COLLECTION)

a

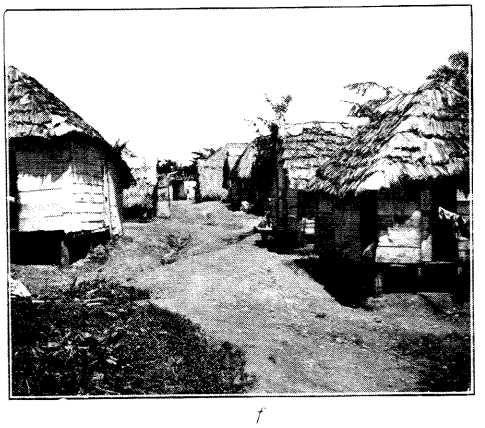


b

c

d

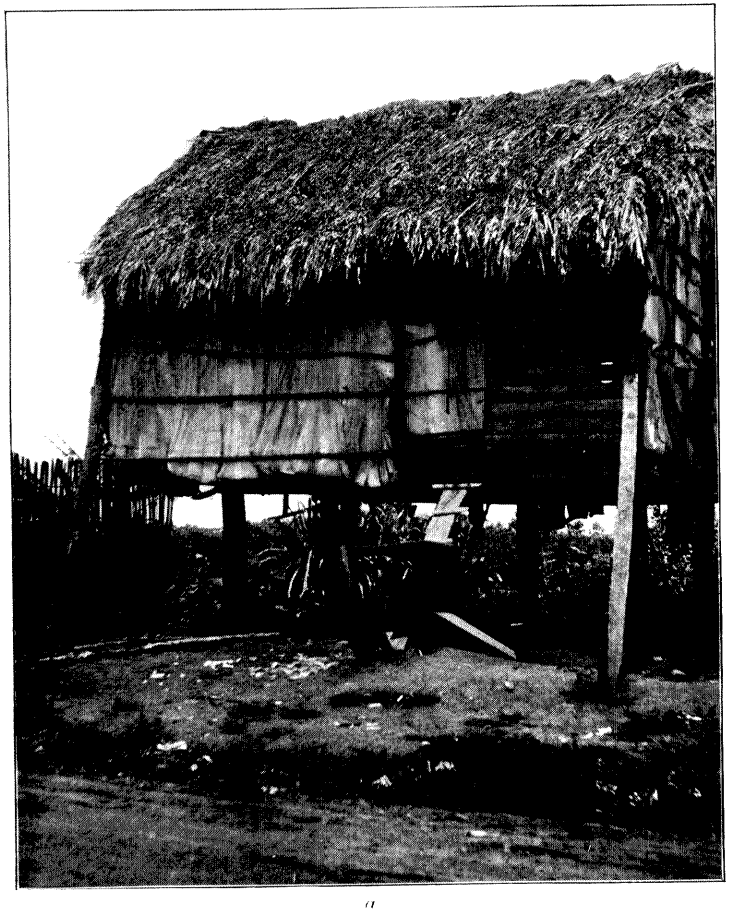
e



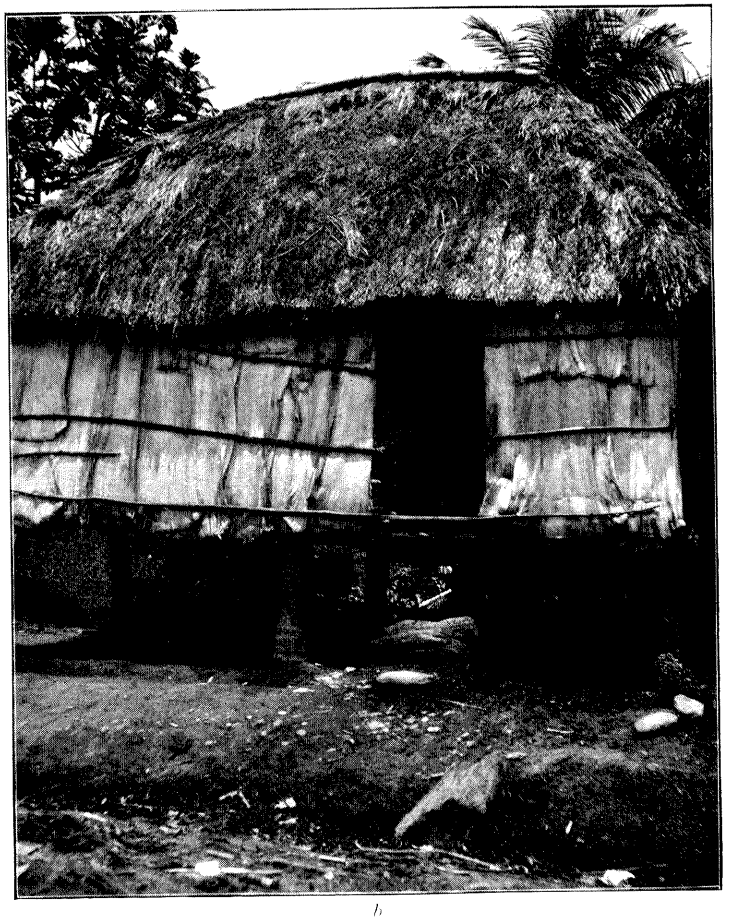
f

HOUSES IN PROCESS OF CONSTRUCTION, LUQUILLO

a Framework without covering
b With straw on sides; roof not covered
c With sides covered; roof partially thatched, showing method of fastening thatch
d, *e* Completed Porto Rican houses, with thatched roof and sides
f Typical street in Porto Rican village, showing poorer houses



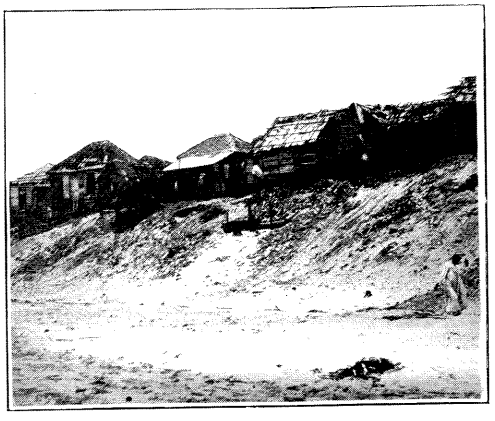
a



b

PORTO RICAN HOUSES

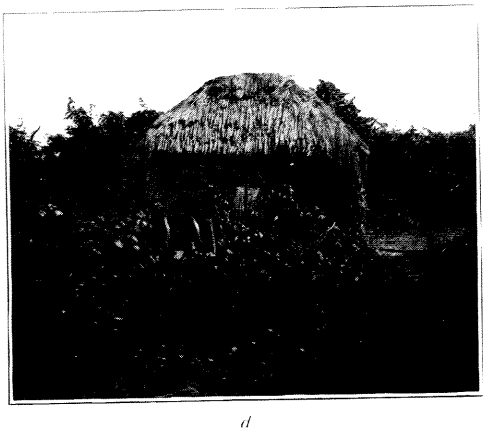
With thatched roofs, and sides covered with palm leaf sheaths, or *yaguas*. One of the houses (*a*) has a door of *yagua* and an adjacent wall of palm-tree slats



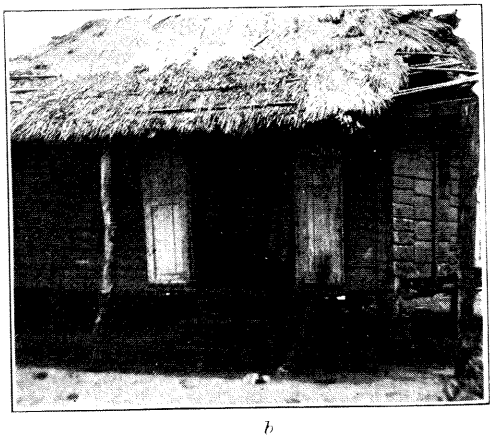
a

c

a'



d



b

e

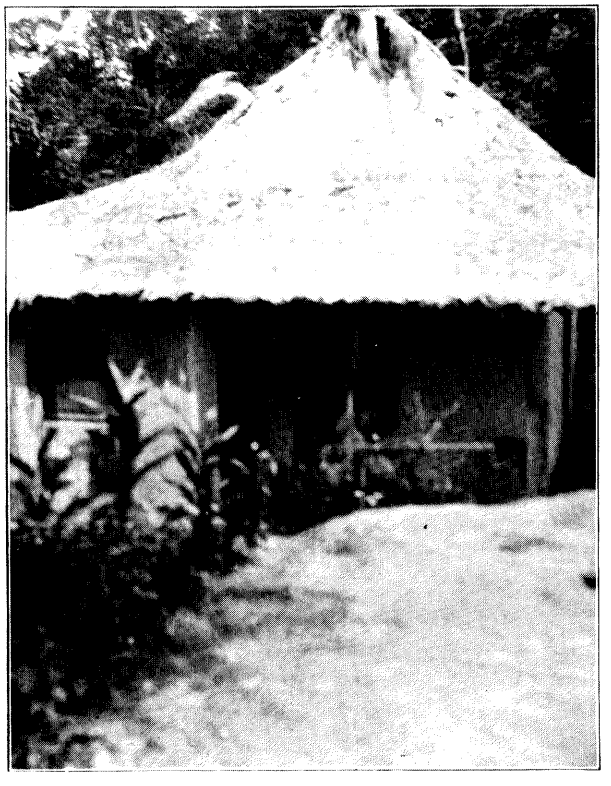
PORTO RICAN HOUSES

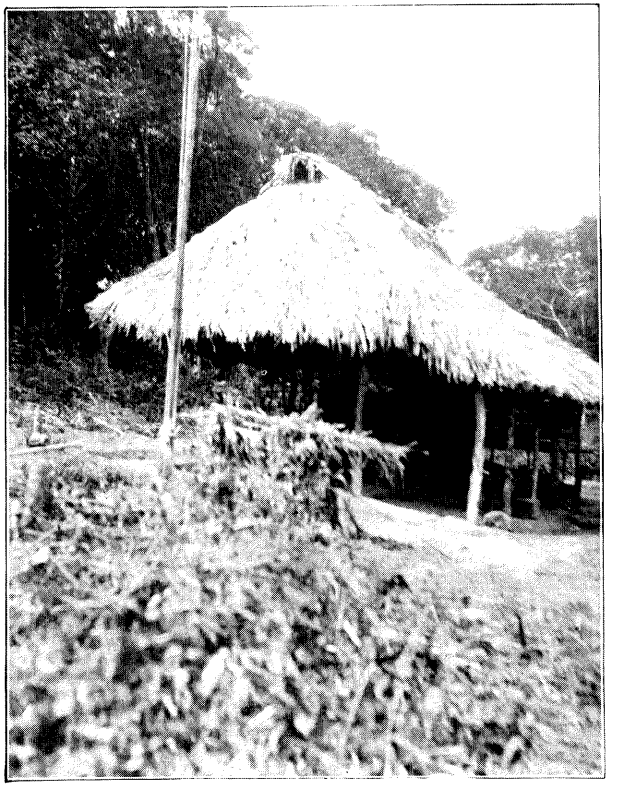
a, a' Fishermen's houses on the dunes at Arecibo
b With walls of split palm trunks; roofs of thatch, near Barceloneta
c, d, e Of the Gibaros in the mountain districts; one of these has both roof and walls of *yagua*

PORTO RICAN HOUSE INHABITED BY NEGROES

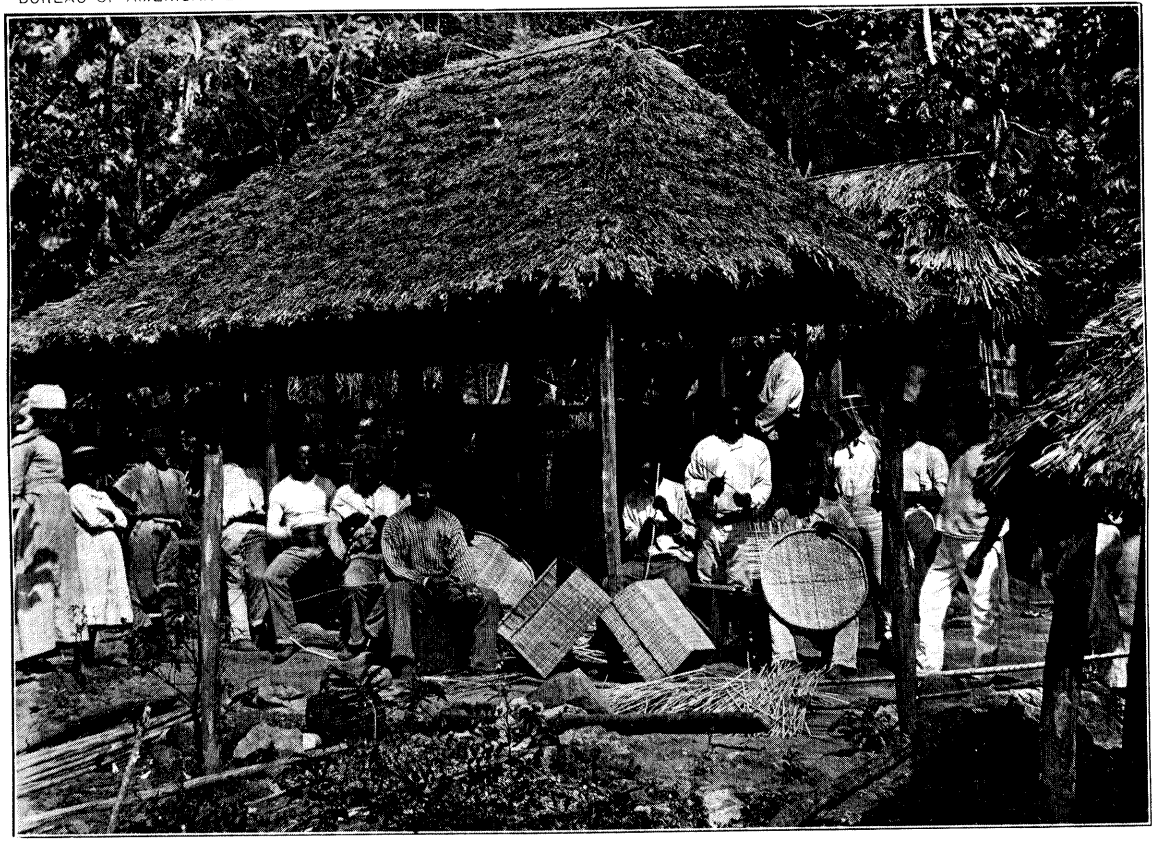
NEGRO HOUSE IN PORTO RICO

With walls constructed of palm leaves and roof thatched

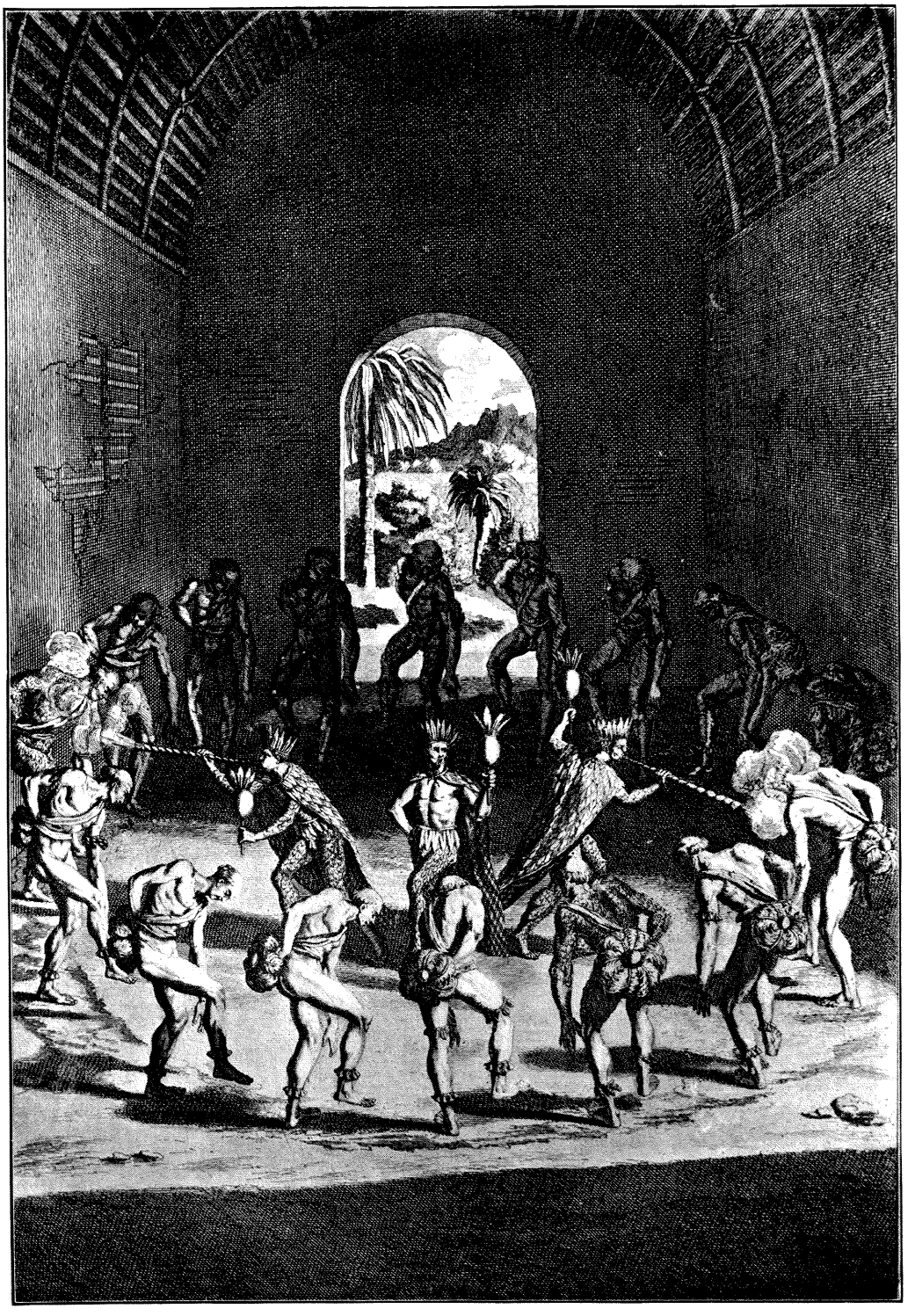




CARIB HOUSES AT ARIMA, TRINIDAD, BRITISH WEST INDIES

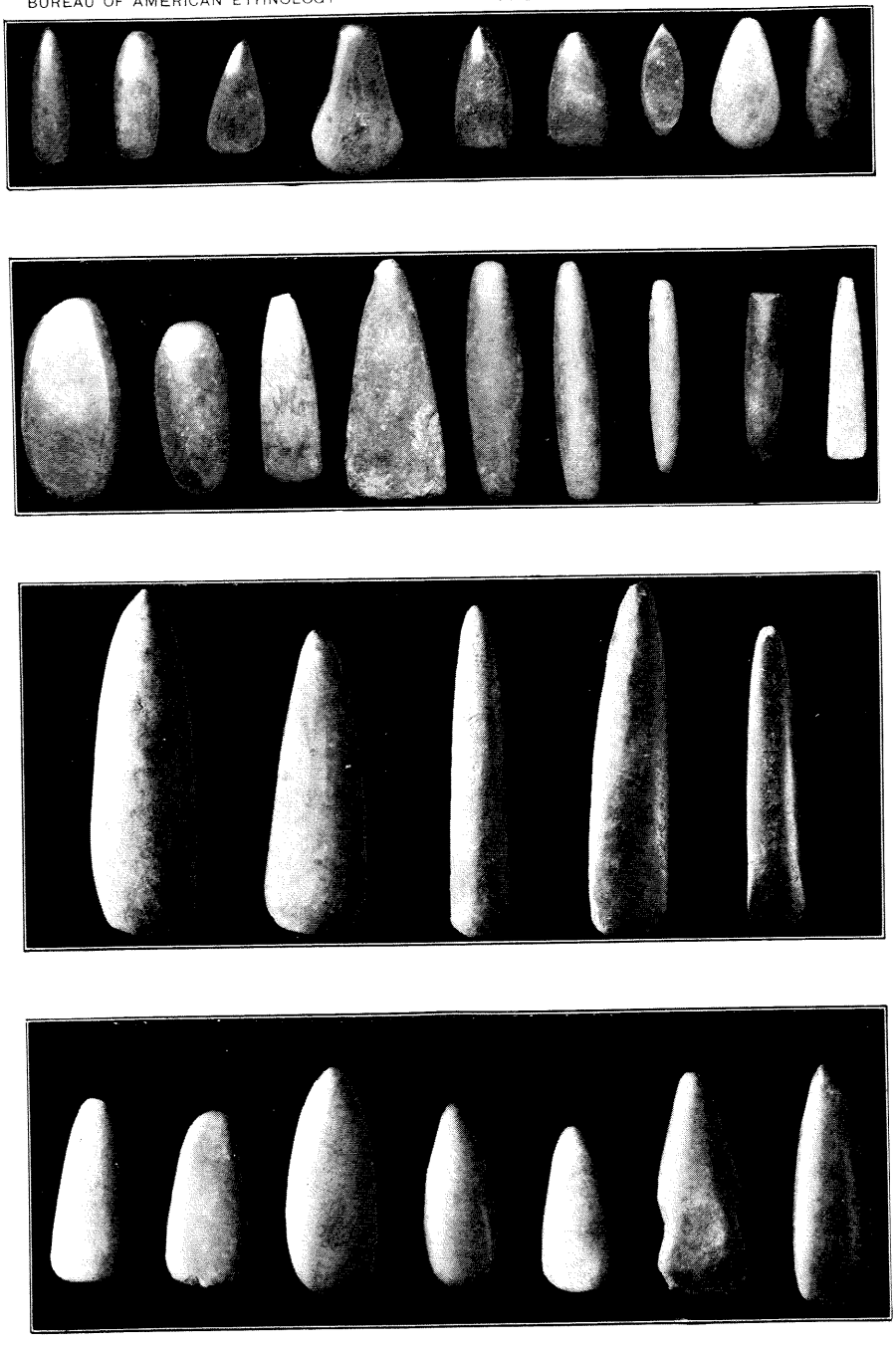


CARIB HOUSE AT ST VINCENT, BRITISH WEST INDIES, WITH GROUP OF CARIB MAKING BASKETS



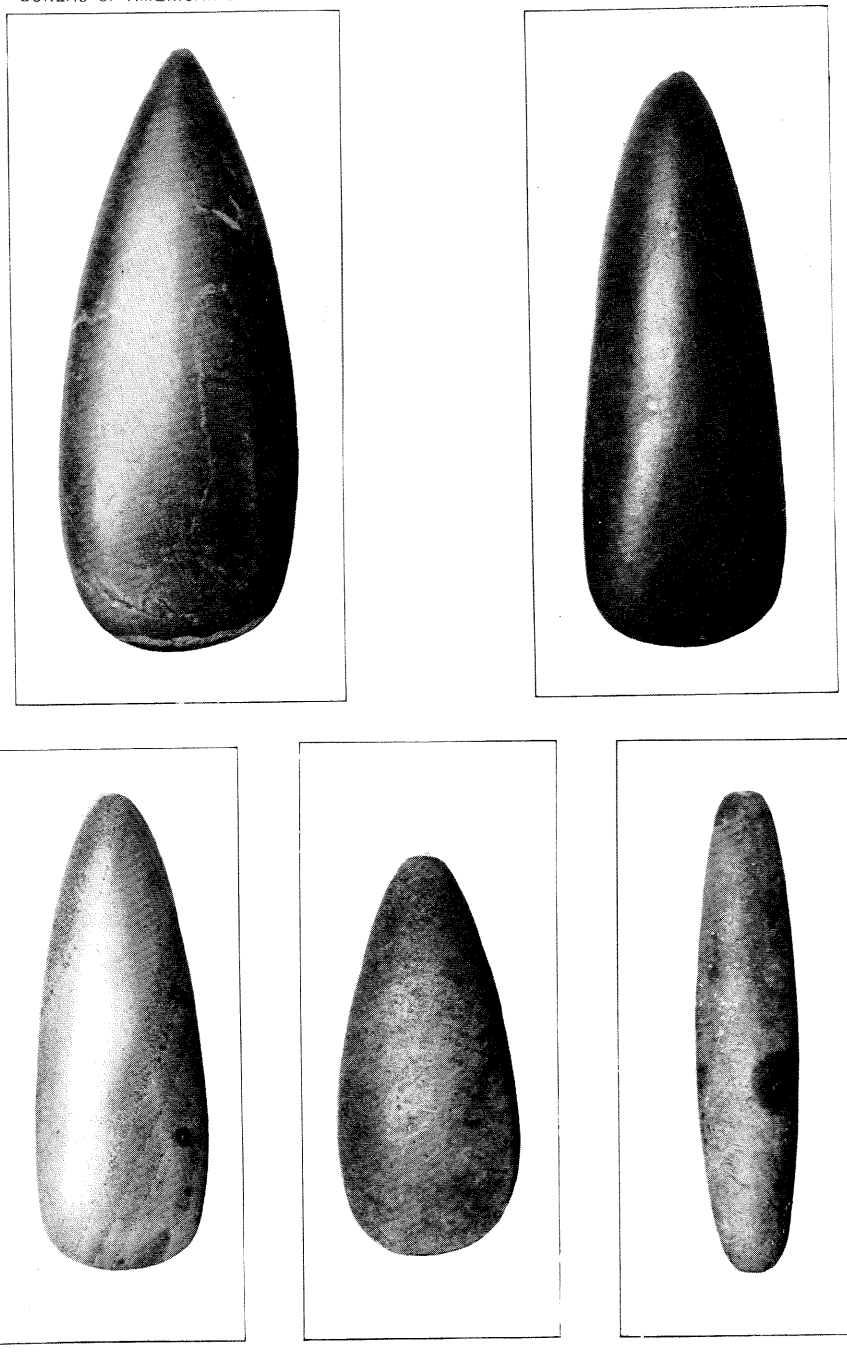
CARIB WAR DANCE (PICARD)

CEREMONIAL DANCE OF THE HAITIANS TO THE EARTH GODDESS (PICARD)



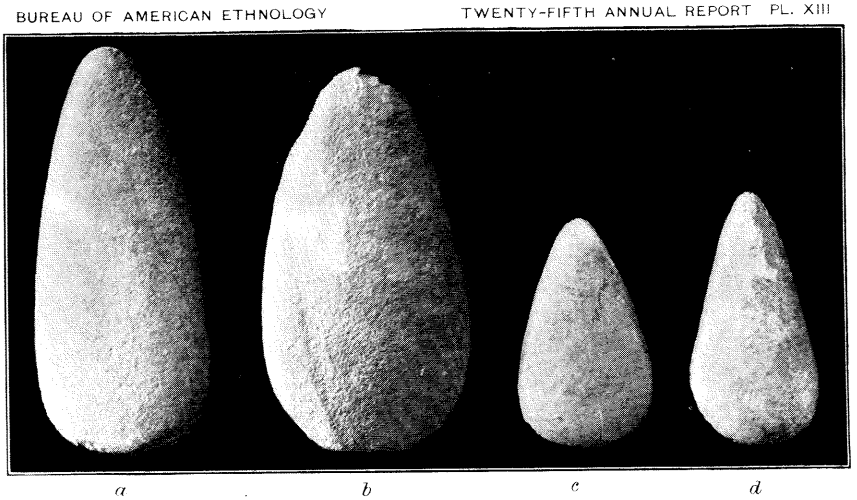
PETALOID STONE IMPLEMENTS AND CHISELS

(One-half natural size)

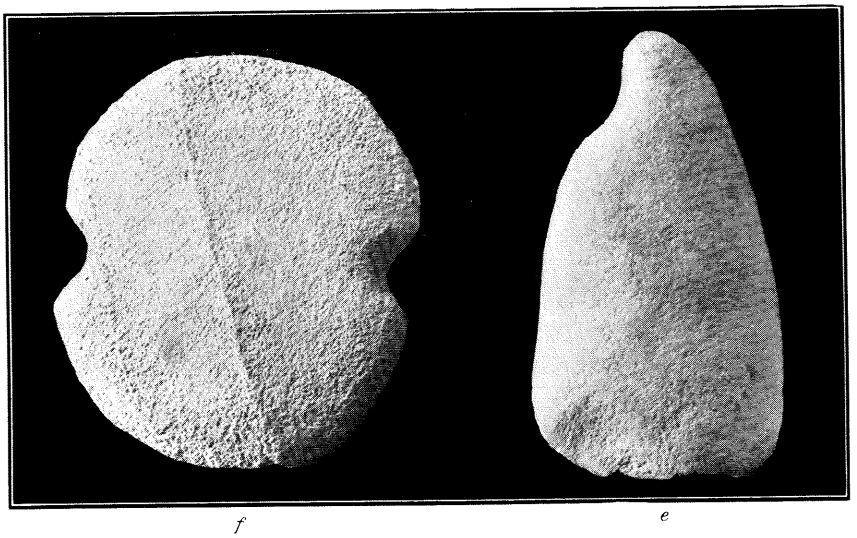


PETALOID STONE IMPLEMENTS, PORTO RICO

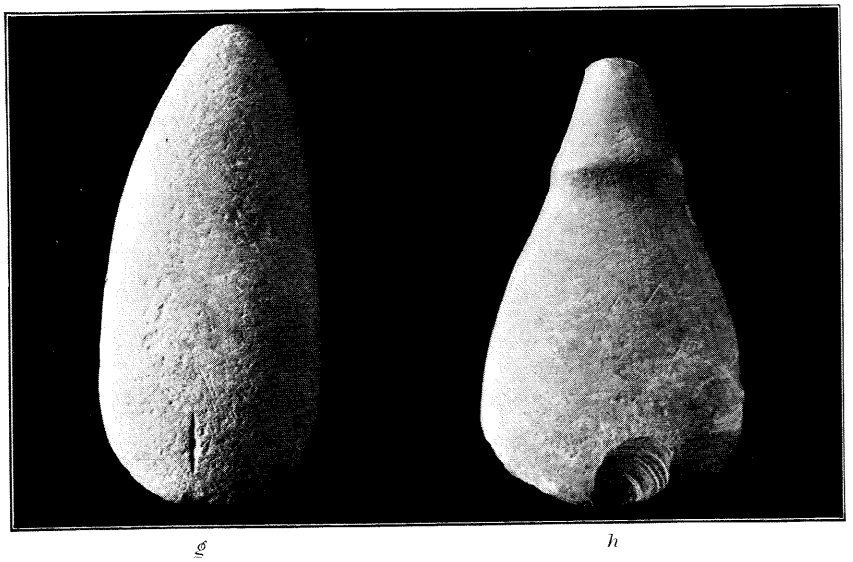
(One-half natural size)



a *b* *c* *d*



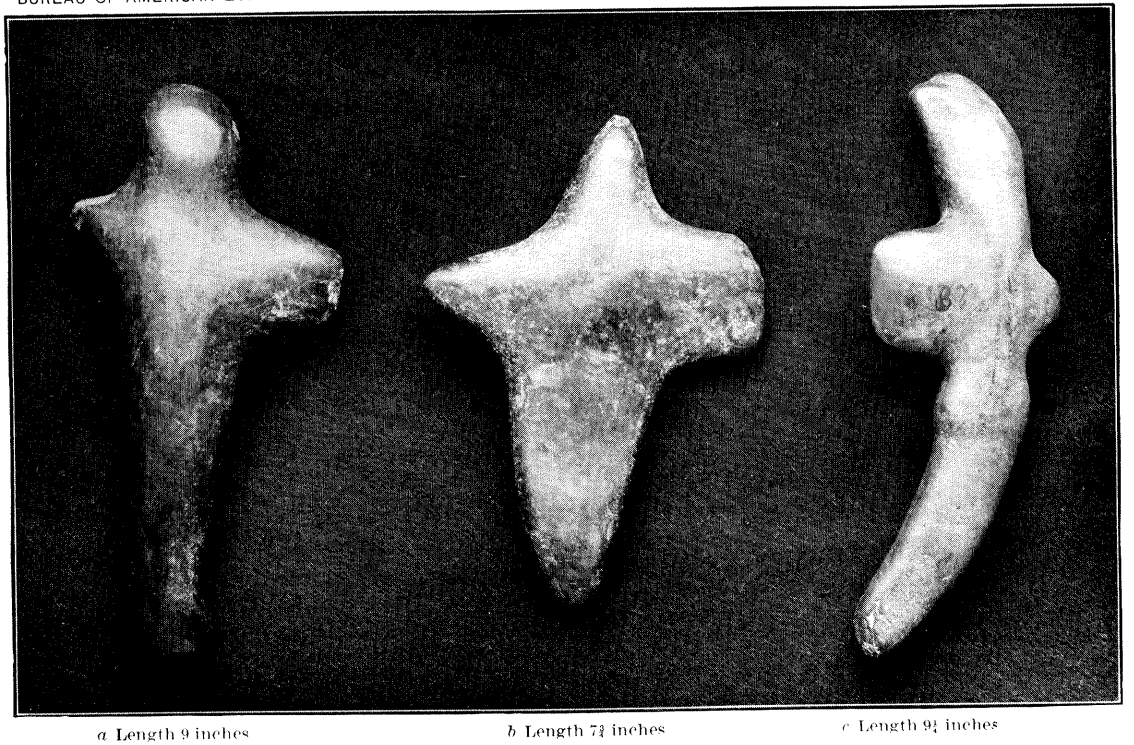
f *e*



g *h*

STONE AXES

a, b, c, d Porto Rico. (One-half natural size)
e, f, g, h Santo Domingo (Archbishop Meriño collection). (One-half natural size)



a Length 9 inches *b* Length 7¾ inches *c* Length 9¼ inches

MONOLITHIC IMPLEMENTS, SANTO DOMINGO (ARCHBISHOP MERIÑO COLLECTION)

a

b

CEREMONIAL STONE HATCHETS

a Santo Domingo (Archbishop Meriño collection); length 14 inches
b Cuba (Santiago Museum)

b

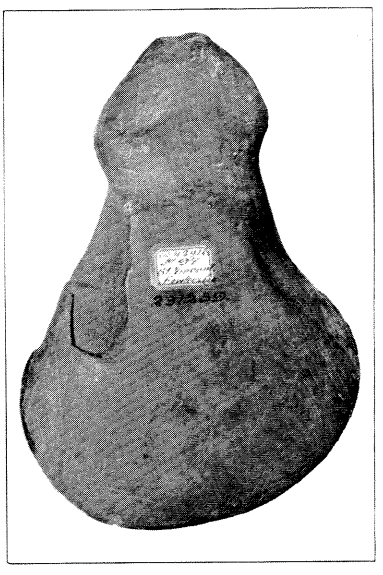
a

c

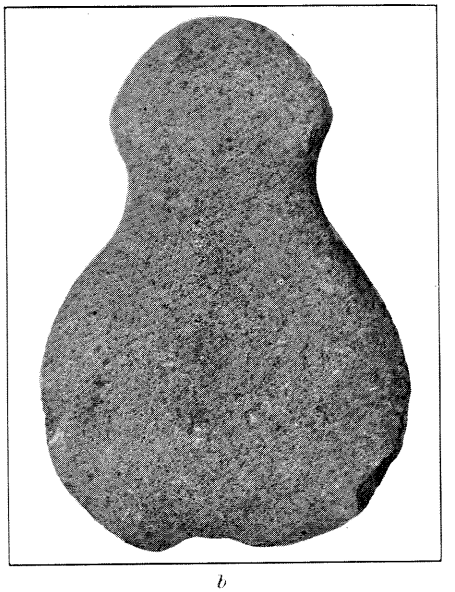
d

PROBLEMATICAL STONE OBJECTS

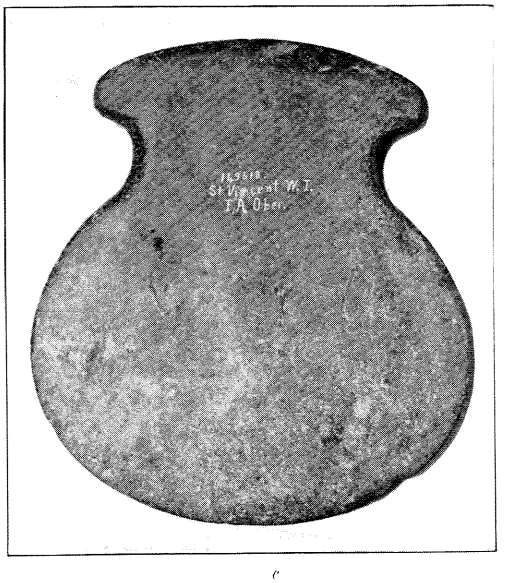
a Ciales, Porto Rico; length 4¼ inches
b (length 4⅞ inches), *c*, *d* (length 5 inches), Porto Rico (Latimer collection)



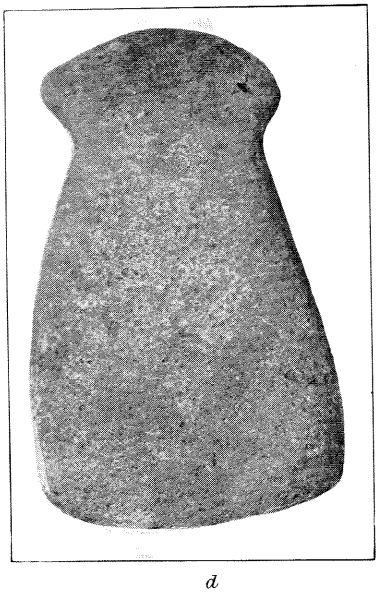
a



b



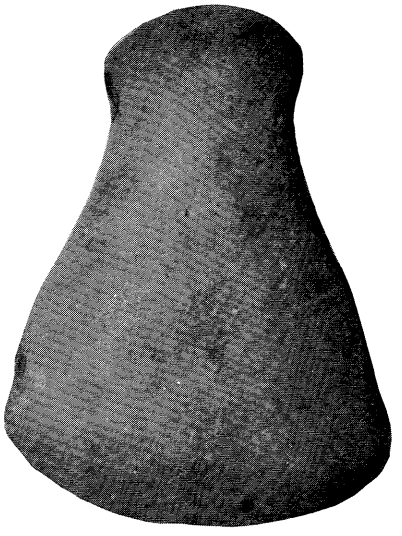
c



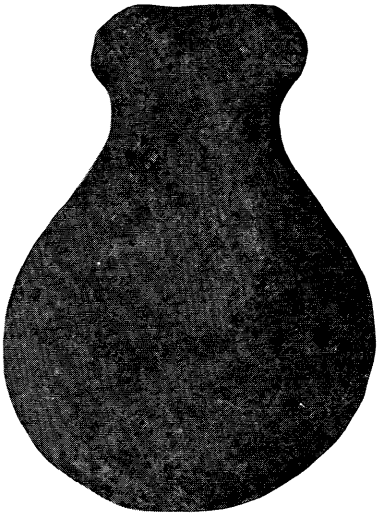
d

STONE AXES FROM ST VINCENT, BRITISH WEST INDIES

(One-fourth natural size)

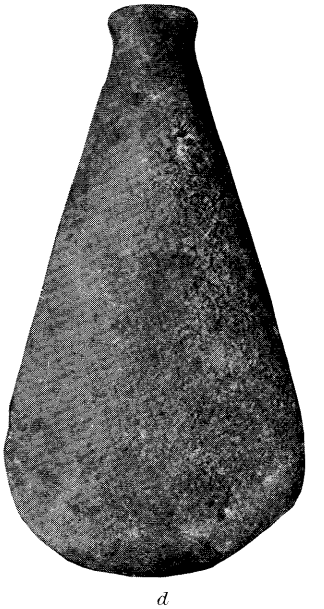


a



b

c



d

STONE AXES FROM ST VINCENT, BRITISH WEST INDIES

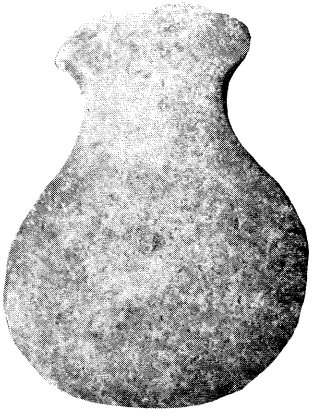
(Two-fifths natural size)

a

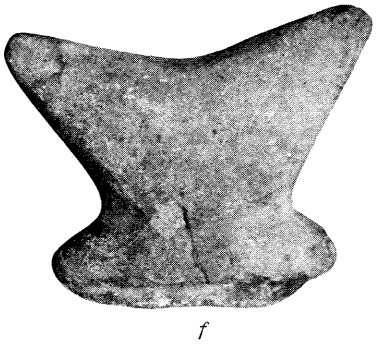
b

c

d



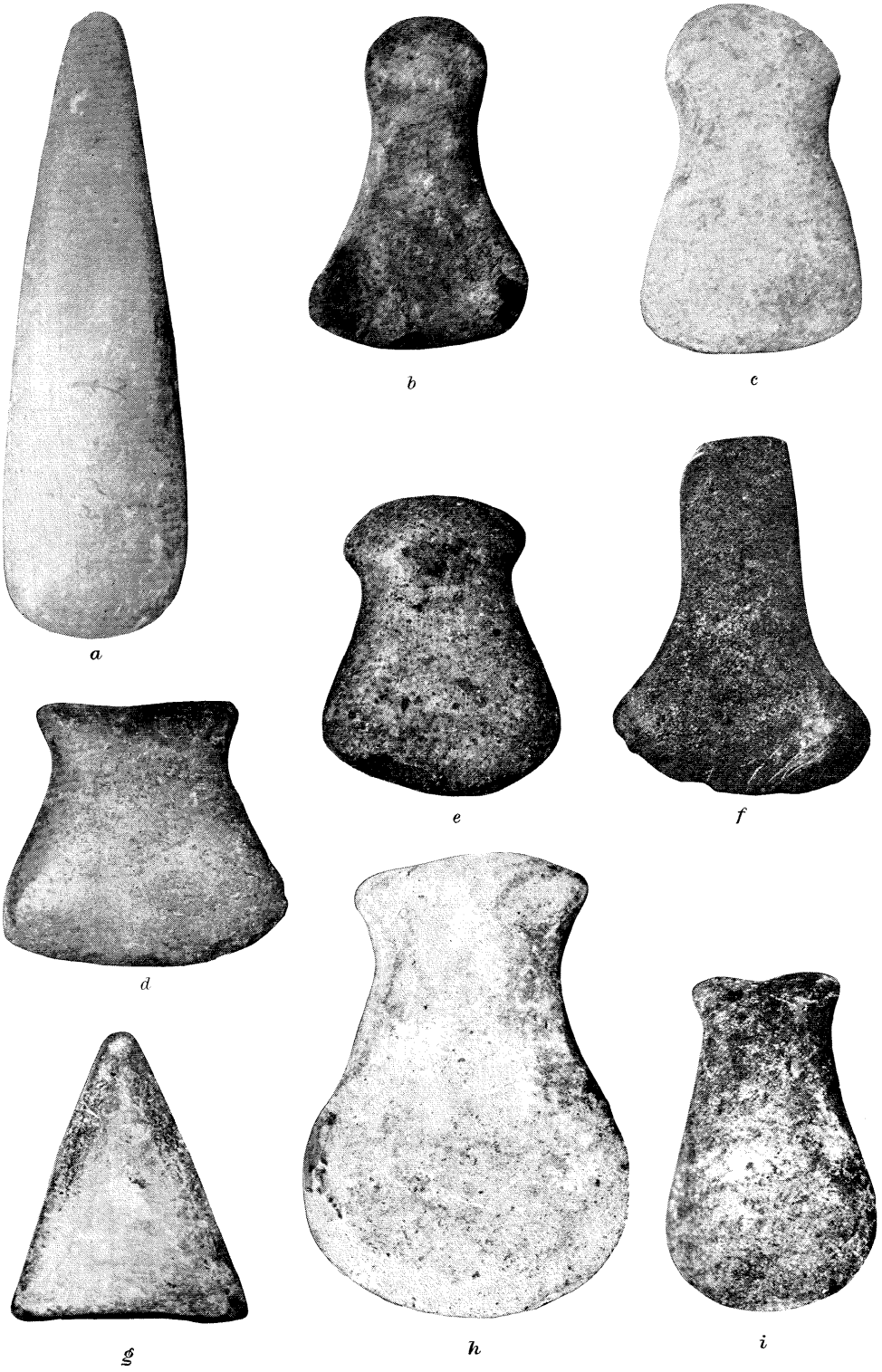
e



f

STONE AXES FROM ST VINCENT, BRITISH WEST INDIES

(One-third natural size. *f*=4¼ by 3⅜ inches)



STONE AXES FROM ST VINCENT, BRITISH WEST INDIES

(Three-eighths natural size)

a

b

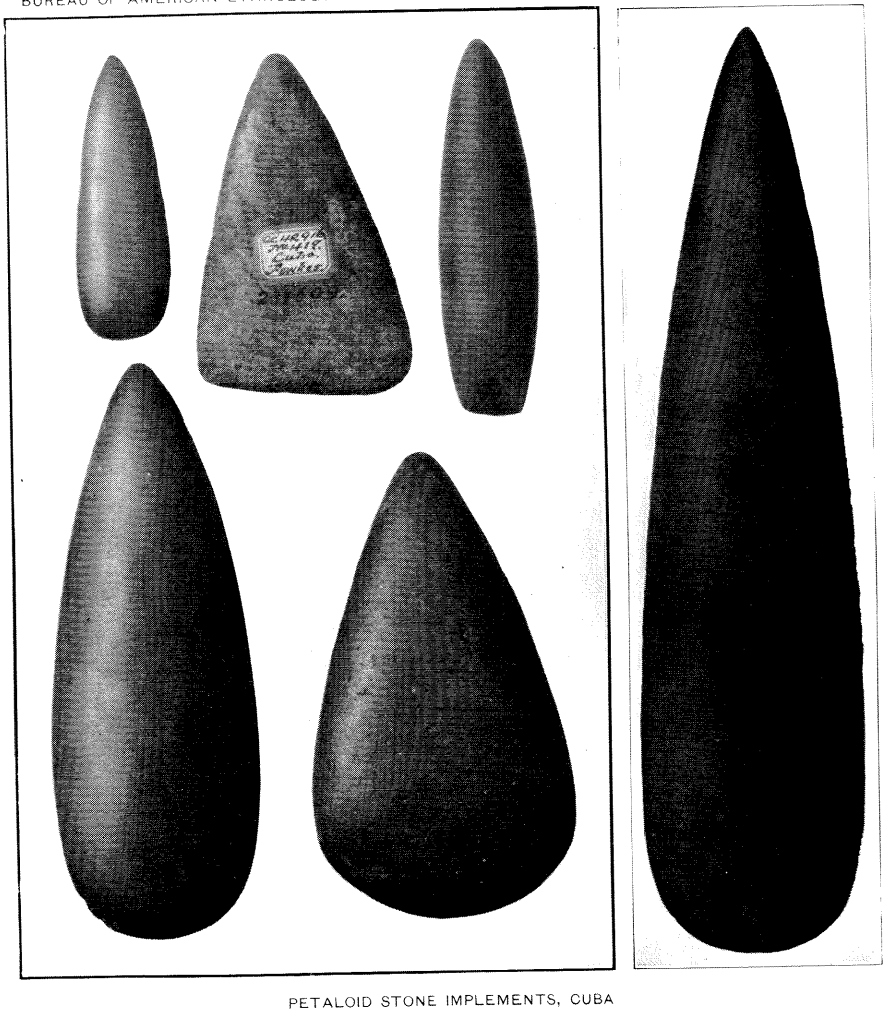
c

d

e

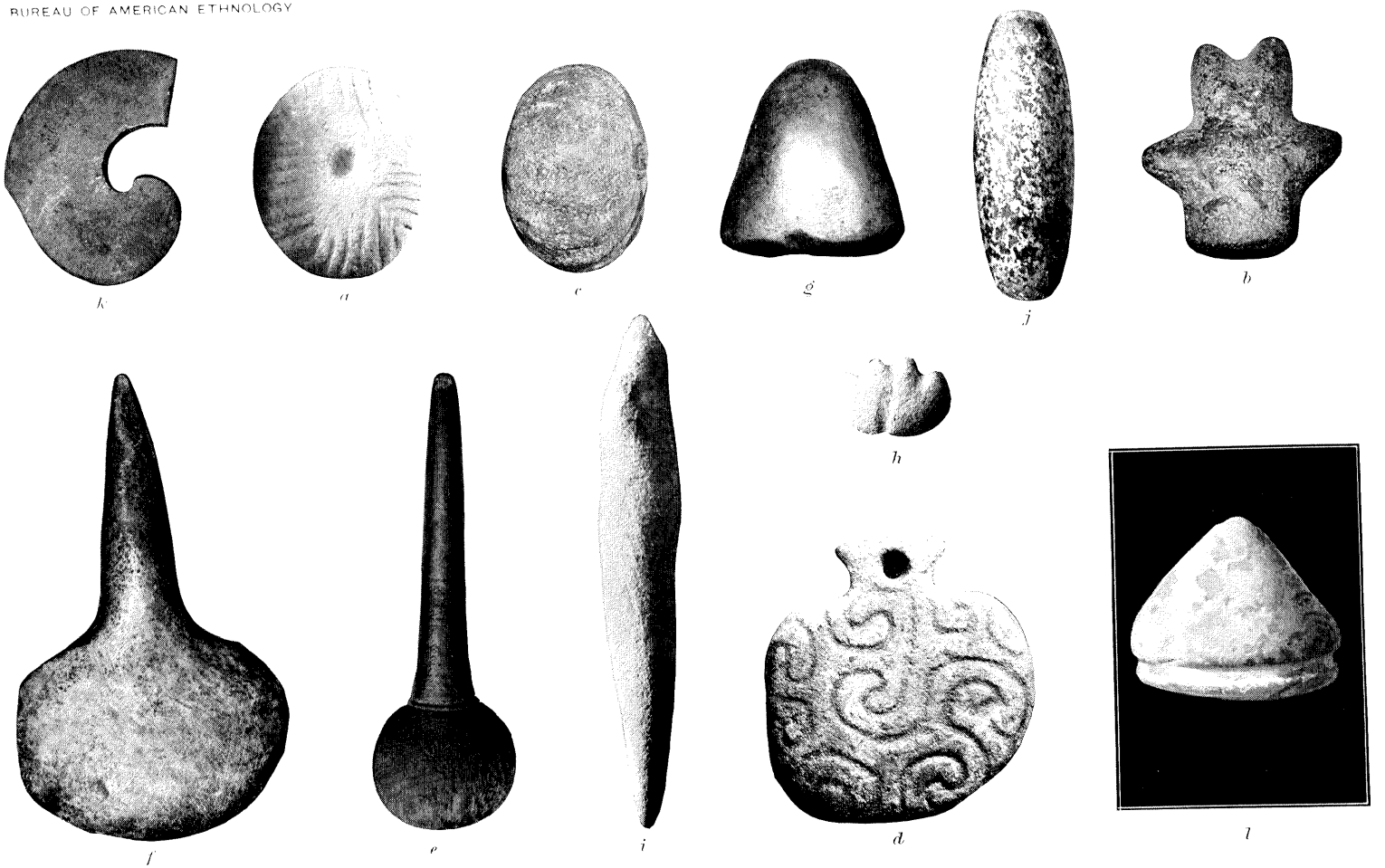
STONE AXES FROM ST VINCENT, BRITISH WEST INDIES

a One-half natural size. *d* Stone hatl. *e* 8 by 4 inches



PETALOID STONE IMPLEMENTS, CUBA

(One-half natural size)



STONE OBJECTS OF VARIOUS FORMS

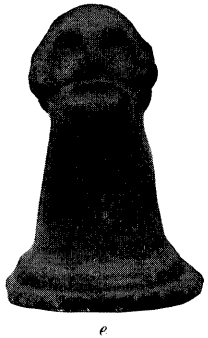
a Disk with superficial markings (Archbishop Meriño collection); diameter 7¼ by 5⅞ inches
b Problematical specimen (Latimer collection); 4⅛ by 3⅜ inches
c Ovate specimen (Archbishop Meriño collection); diameters 4⅛ and 4 inches
d Disk with superficial grooves (Archbishop Meriño collection); diameter 17 inches
e Ceremonial baton (Gabb collection); length 17 inches
f Problematical specimen (Latimer collection); length 9½, width 5½ inches
g Polishing stone; length 3⅜ inches
h Unknown implement (Archbishop Meriño collection); one-third natural size
i Serpent (Archbishop Meriño collection); one-half natural size
j Cylinder (Archbishop Meriño collection); length 5¾ inches
k Curved specimen, St Vincent; largest diameter 5¾ inches, thickness ⅜ inch
l Conical specimen of unknown meaning; one half by 1½ inches

c

d

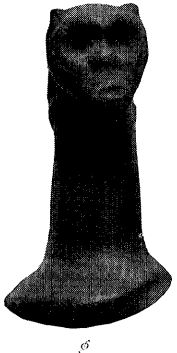
b

a



e

f



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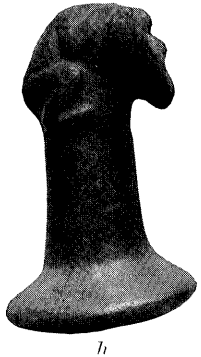

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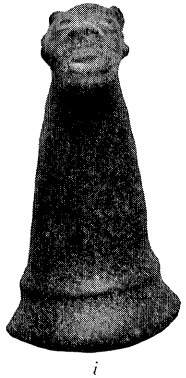
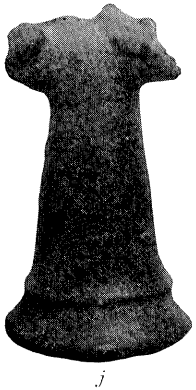


i

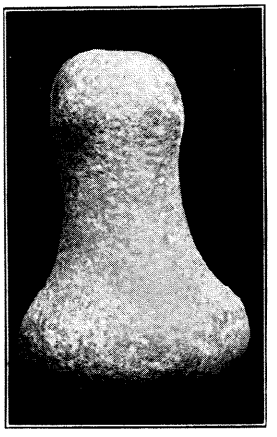


j

STONE PESTLES, SANTO DOMINGO (ARCHBISHOP MERIÑO COLLECTION)

a, *b* Lateral and top views of specimen with figure lying on back; height 5½ inches
c, *d* Front and side views of specimen showing head and body at end of handle; height 9 inches
e, *f* Front and side views of specimen with disk much worn; height 7⅞ inches
g, *h* Front and side views of specimen with animal figure at end of handle; height 7⅞ inches
i, *j* Front and side views of specimen with figure on the end of handle; height 6 inches

a



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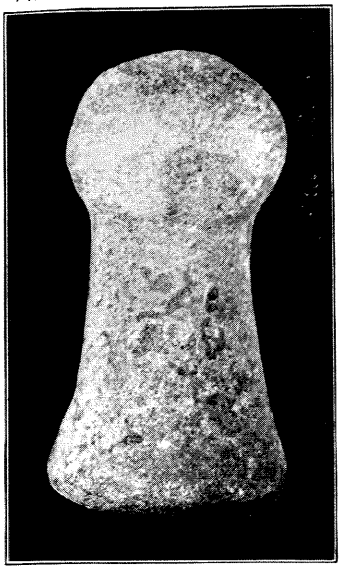
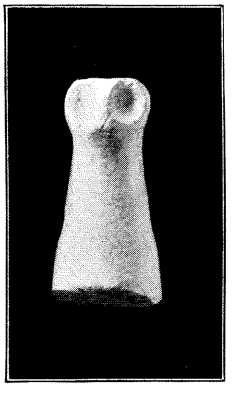


c



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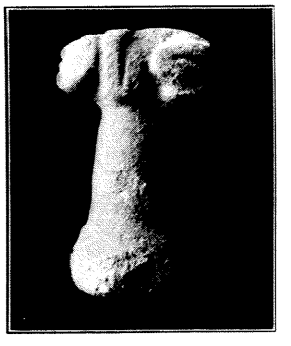

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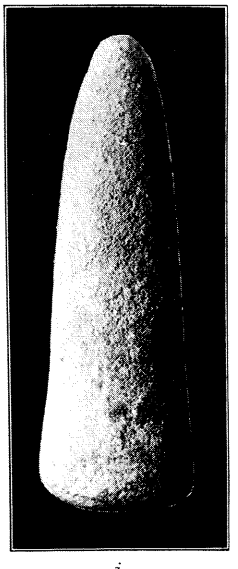
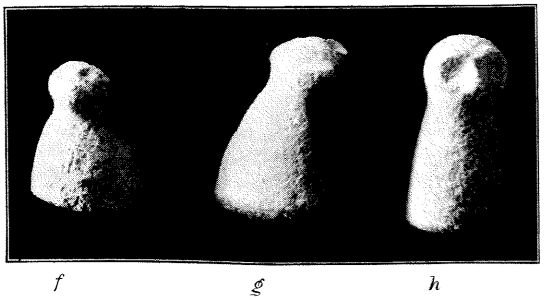


i



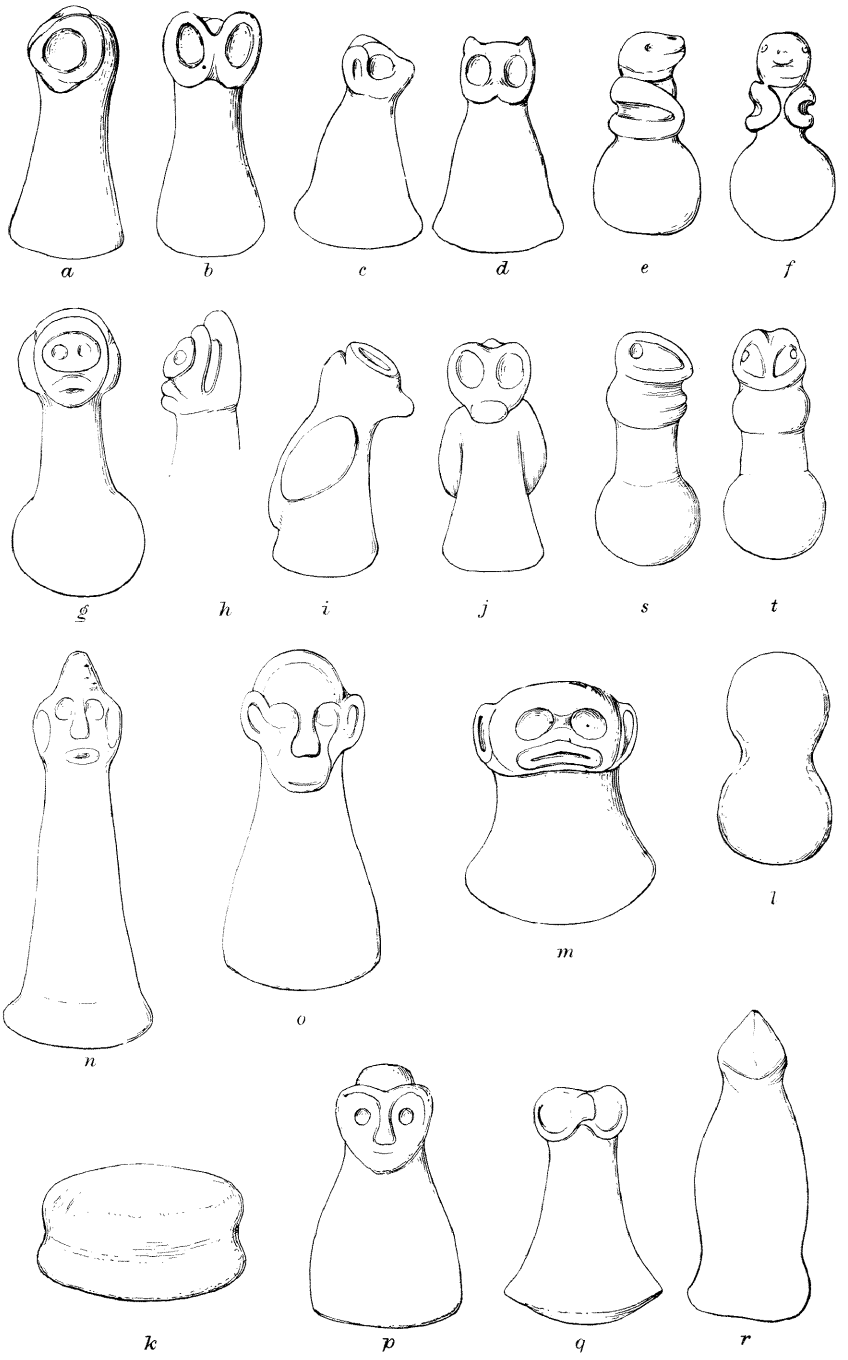
f *g* *h*

STONE PESTLES (ARCHBISHOP MERIÑO COLLECTION)

a Elongated specimen with rude head on one end; length 11⅛ inches
b Rude specimen without head; height 4⅛ inches
c With globular enlargement at one end; height 6 inches
d With eyes on one end; height 5¼ inches
e With animal on one end; height 6 inches
f, *g*, *h*, *i* Rude specimens without decoration (three-fourths natural size)

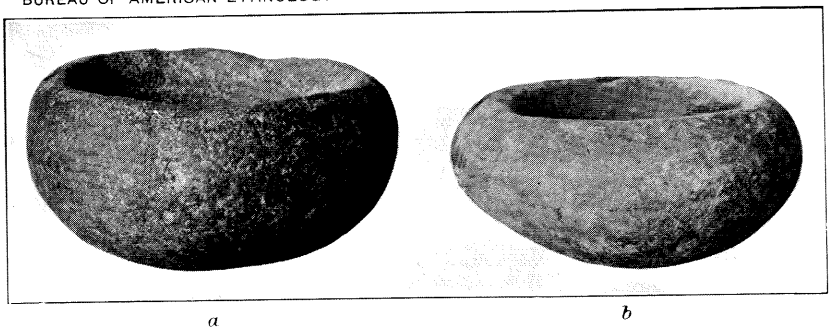
STONE PESTLES

a With large base (Archbishop Meriño collection); height 4⅛ inches
b With globular base (Archbishop Meriño collection); height 4⅜ inches
c With human face (Latimer collection); height 3⅛ inches
d Rude specimen (Archbishop Meriño collection); height 4 inches
e With the handle cut in imitation of a human being (Archbishop Meriño collection); height 5¾ inches
f With human head on end of handle (Archbishop Meriño collection); height 4⅛ inches
g With rude human head on one end (Archbishop Meriño collection)
h In form of an idol (Archbishop Meriño collection); height 4⅛ inches
i In form of bird (Archbishop Meriño collection); height 5 inches
j Rude specimen, St Vincent, British West Indies (Ober collection)
k Rude specimen in form of idol (Archbishop Meriño collection); height 4¼ inches
l Rude specimen (Archbishop Meriño collection)

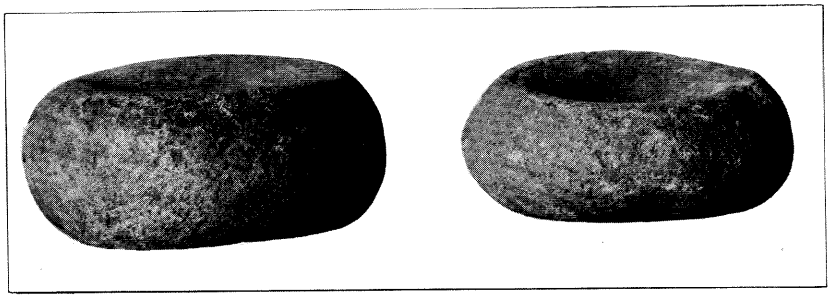


STONE PESTLES (*a–l* IMBERT COLLECTION; *m–t* HALL COLLECTION)

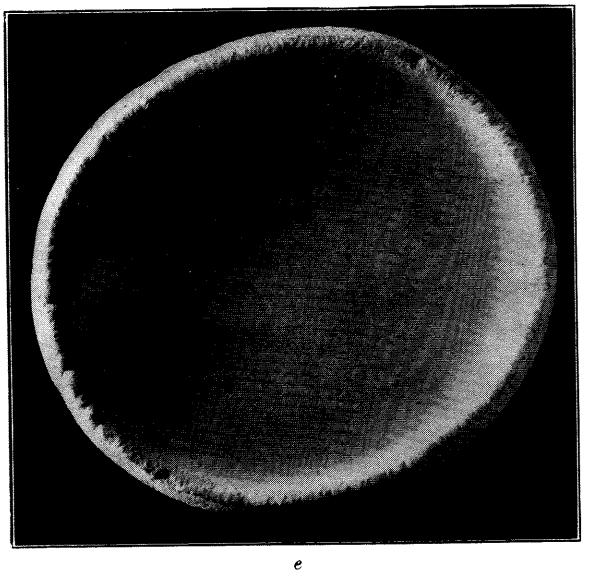
a, *b* Front and side views of specimen with head
c, *d* Front and side views of specimen with head
e, *f* Front and side views of specimen with globular base
g, *h* Front and side views of specimen with globular base
i, *j* Side and back of bird-formed specimen
k Disk-shaped specimen
l Dumb-bell specimen
m With human face
n Elongated specimen with conical appendage to the head
o With head; ears prominent
p With human face
q With two terminal disks
r With swollen handle; conical head
s, *t* Front and side views of specimen with globular base



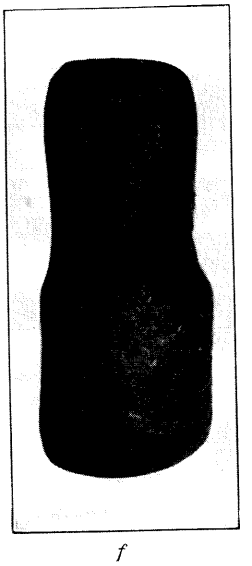
a *b*



c *d*



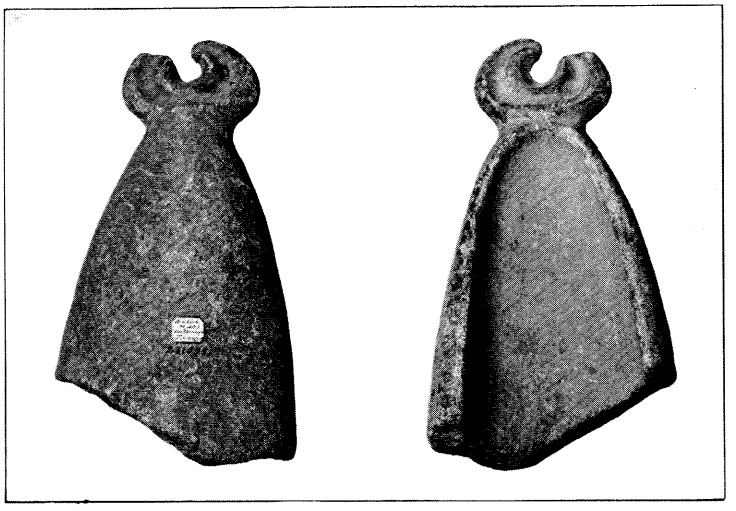
e



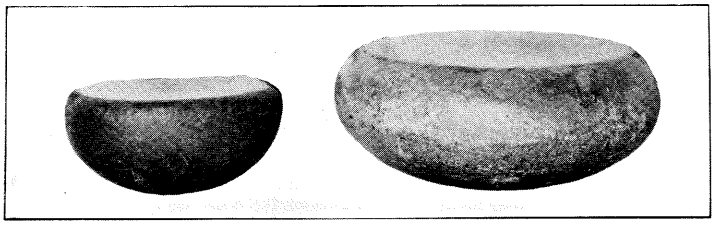
f

STONE MORTARS

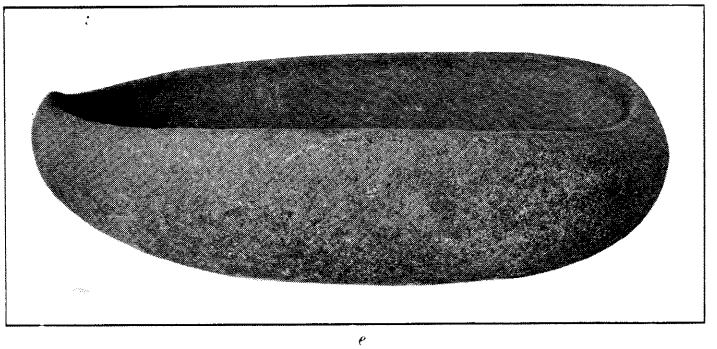
a, *b*, *c*, *d* Small specimens, Porto Rico; diameters: *a*, 3⅝; *b*, 3¼; *c*, 6¼; *d*, 5⅛ inches
e Large specimen, top view (Archbishop Meriño collection); 13¾ by 12¾ by 4 inches
f Broken collar (has been used as a pestle); length 4 inches



b *a*



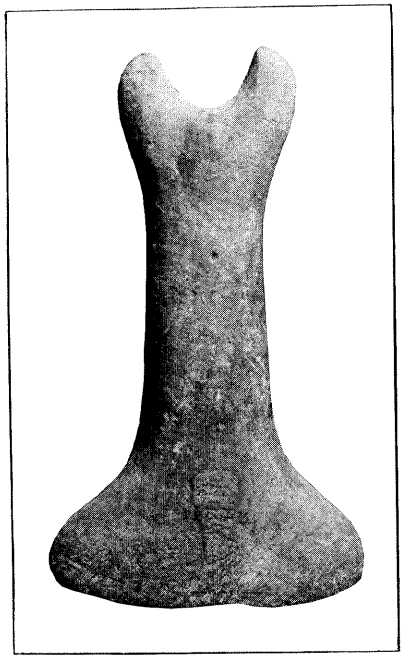
c *d*



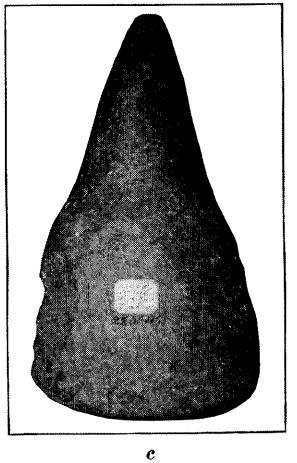
e

STONE MORTARS

a, *b* Top and bottom views of fragment from Santo Domingo (Neumann collection); length 10⅜ inches
c, *d* Pigment grinders; diameter—*c*, 2¾ inches; *d*, 4⅜ inches
e Elongated (Archbishop Meriño collection); 17 by 8¼ inches



a



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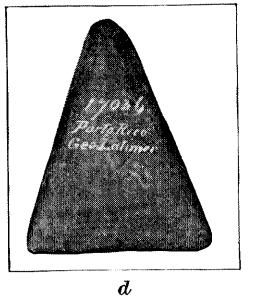
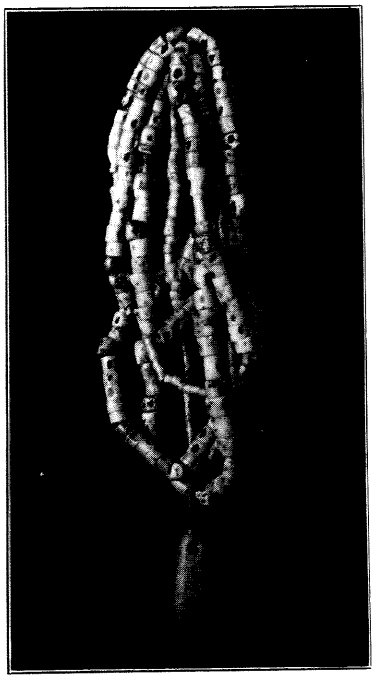


d

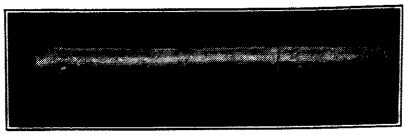
b

STONE IMPLEMENTS

a Rubber or grinder with forked handle (Archbishop Meriño collection); length 8¼ inches
b Rubber or grinder; length 8⅜ inches
c, *d* Rubbers (Latimer collection); one-half natural size

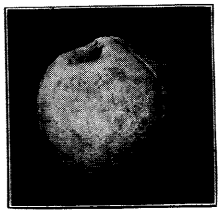


a



b

c



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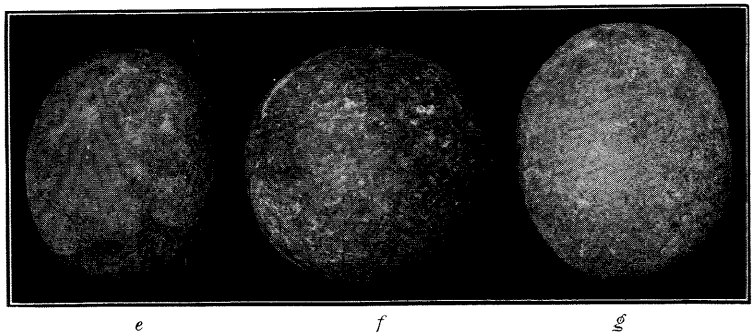
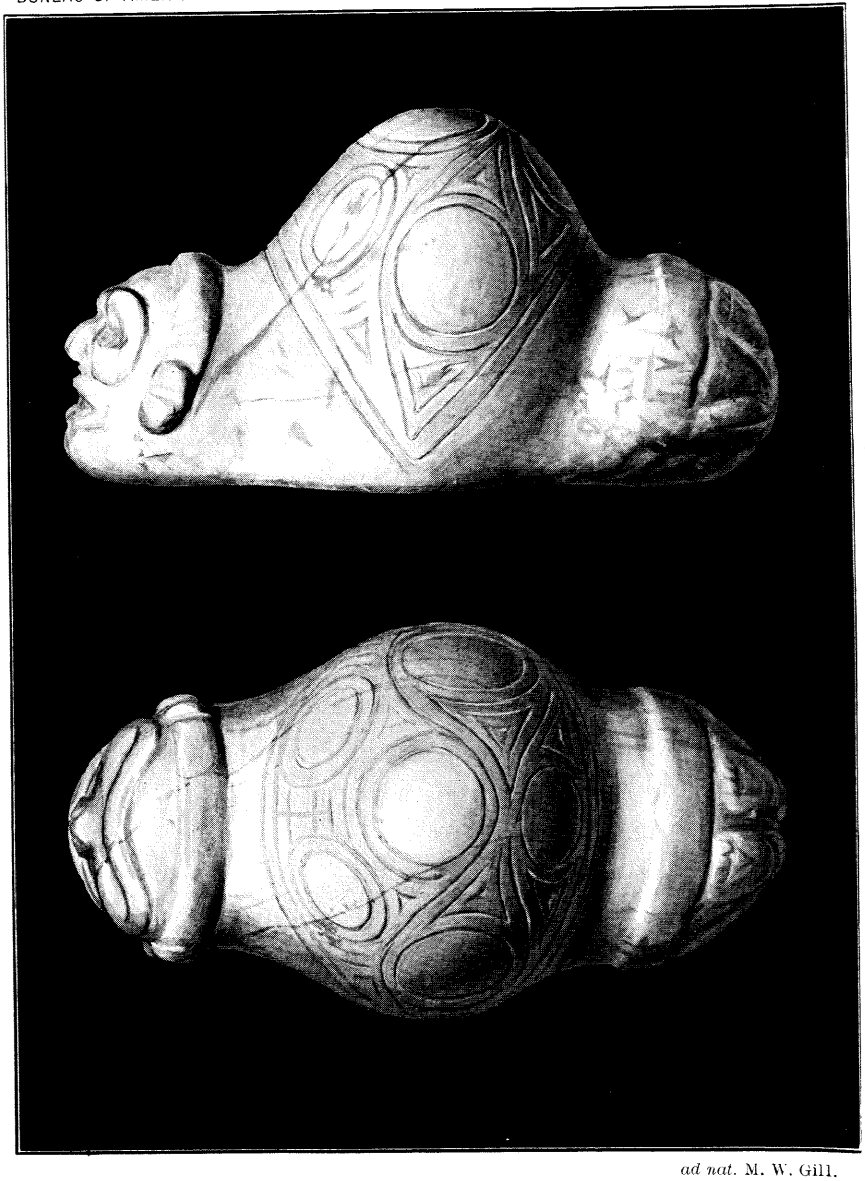


e *f* *g*

MISCELLANEOUS STONE OBJECTS

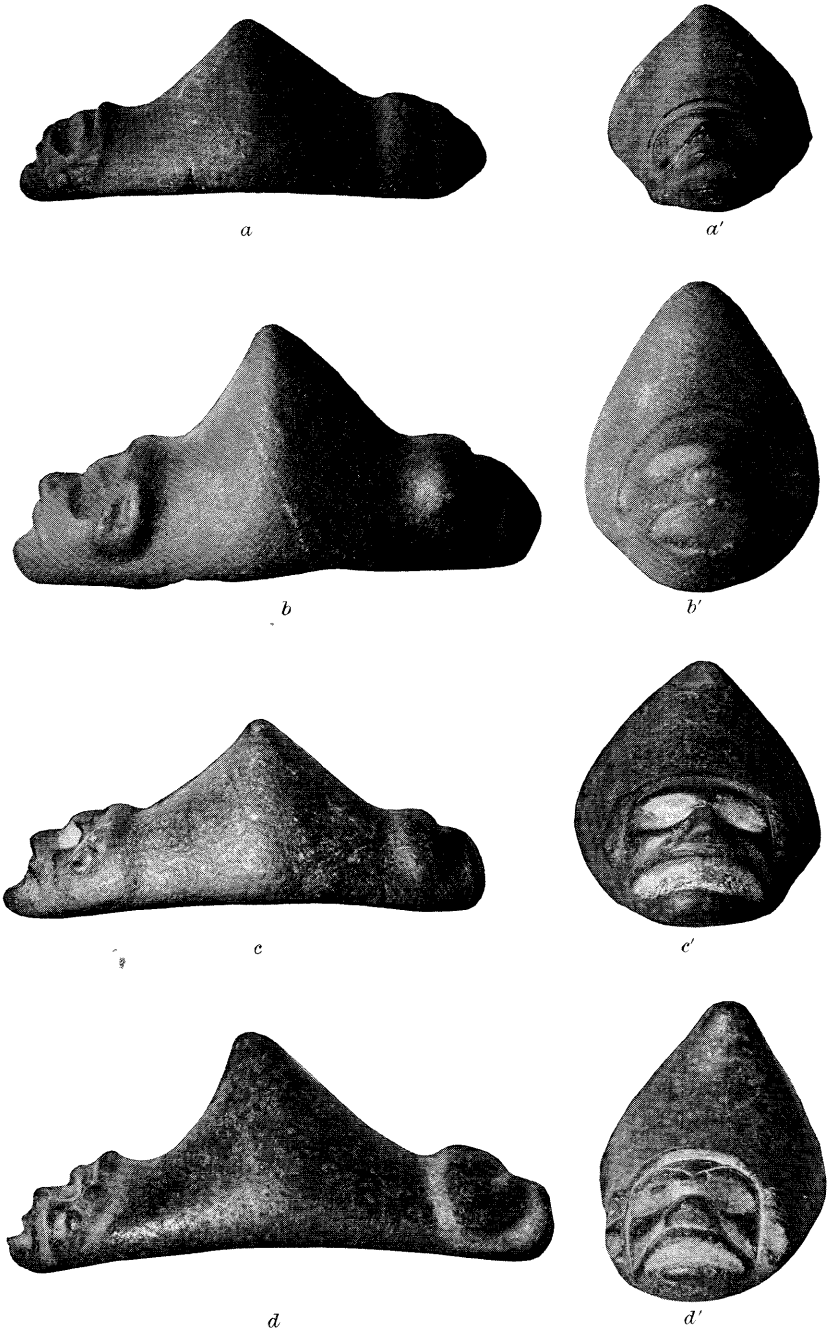
a Beads and pendants, Porto Rico
b Cylinder, Porto Rico; 5¼ by ⅞ inches
c Cylinder, Porto Rico; length 4⅜, diameter 1⅜ inches
d Ball with eyelet (Archbishop Meriño collection); diameter 2½ inches
e, f, g Balls, Porto Rico; one-fourth natural size



ad nat. M. W. Gill.

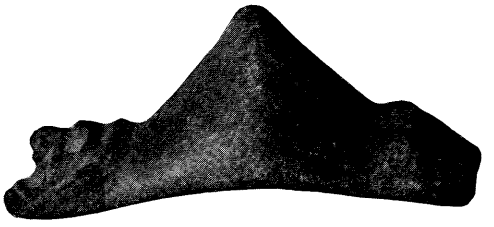
THREE-POINTED STONE OF FIRST TYPE; LENGTH 8¼ INCHES

a Side view
b Top view



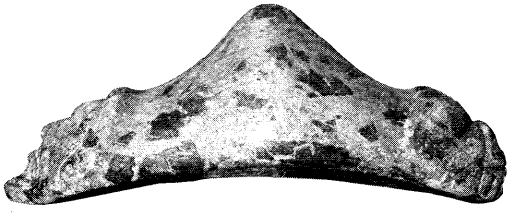
THREE-POINTED STONES OF THE FIRST TYPE

a, *a'* Lateral and face views of specimen with low conical projection: length 5⅝ inches
b, *b'* Lateral and face views of specimen with rounded conical projection: length 10¾ inches
c, *c'* Lateral and face views of specimen; length 14 inches
d, *d'* Lateral and face views of specimen, showing prominent ears and chin; length 9⅛ inches



a

a′

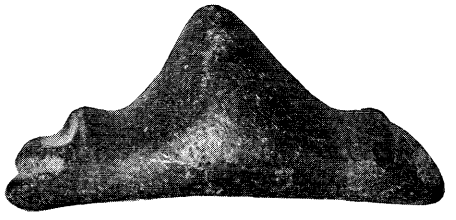


b

b′

c

c′



d

d′

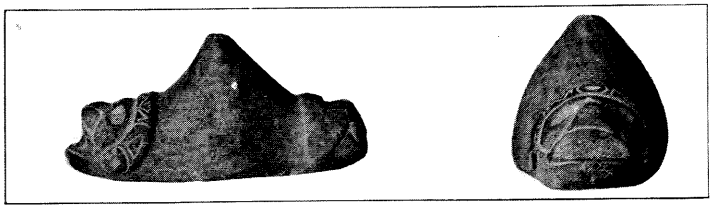
THREE-POINTED STONES OF THE FIRST TYPE

a, *a′* Lateral and face views of specimen with very smooth surface (Latimer collection); length 10 inches

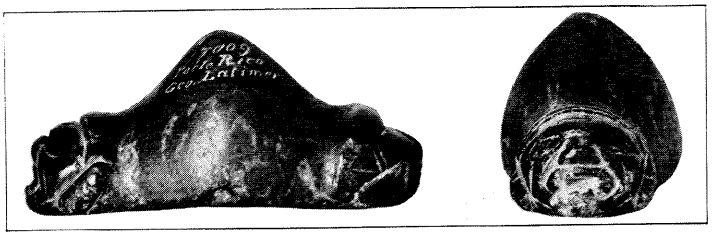
b, *b′* Lateral and face views of specimen with curved base, showing patches of varnish (Latimer collection); length 11 inches

c, *c′* Lateral and side views of specimen (Latimer collection); length 10.3 inches

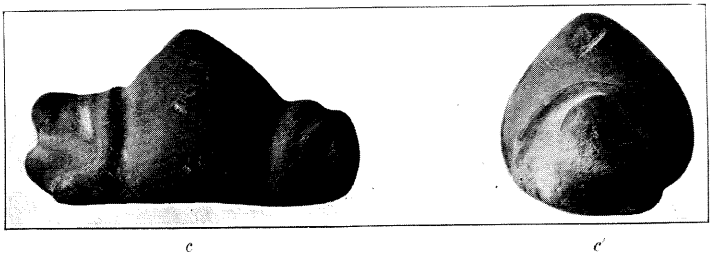
d, *d′* Lateral and side views of specimen with rude head (Neumann collection); length 10 inches



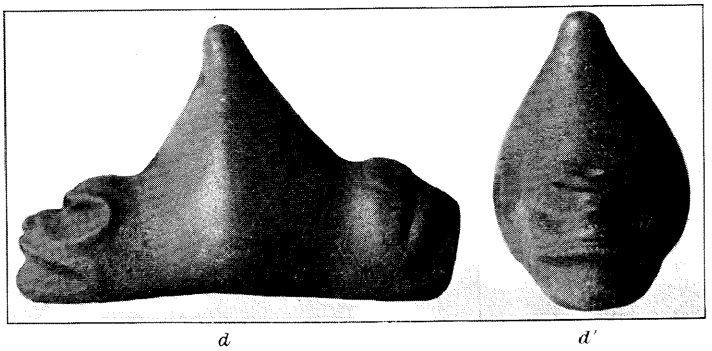
a *a′*



b *b′*



c *c′*



d *d′*

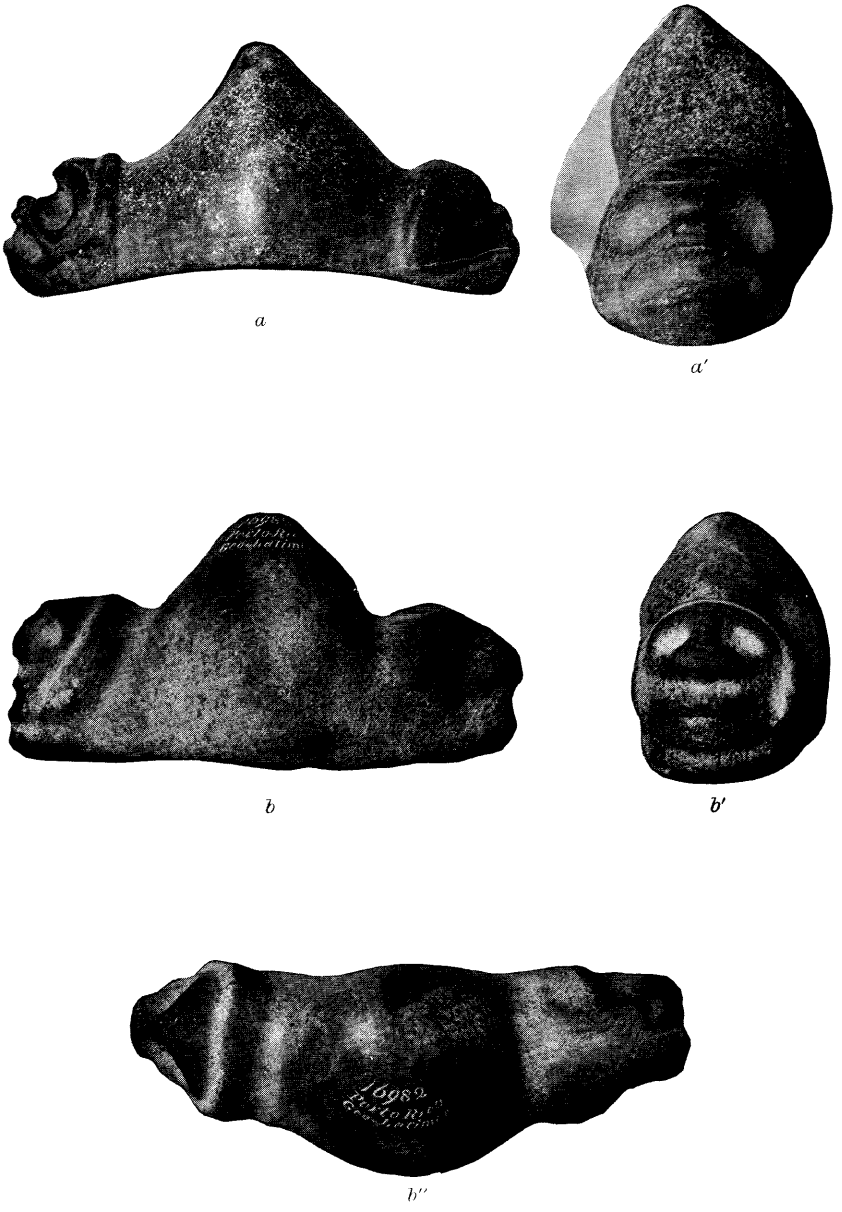
THREE-POINTED STONES OF THE FIRST TYPE

a, *a′* Lateral and front views of specimen, showing decorated band over eyes; length 4⅛ inches

b, *b′* Lateral and front views of specimen (Latimer collection); length 5.8 inches

c, *c′* Lateral and front views of specimen with prominent nose; length 5¾ inches

d, *d′* Lateral and front views of specimen, Santo Domingo (Archbishop Meriño collection); length 8¾ inches

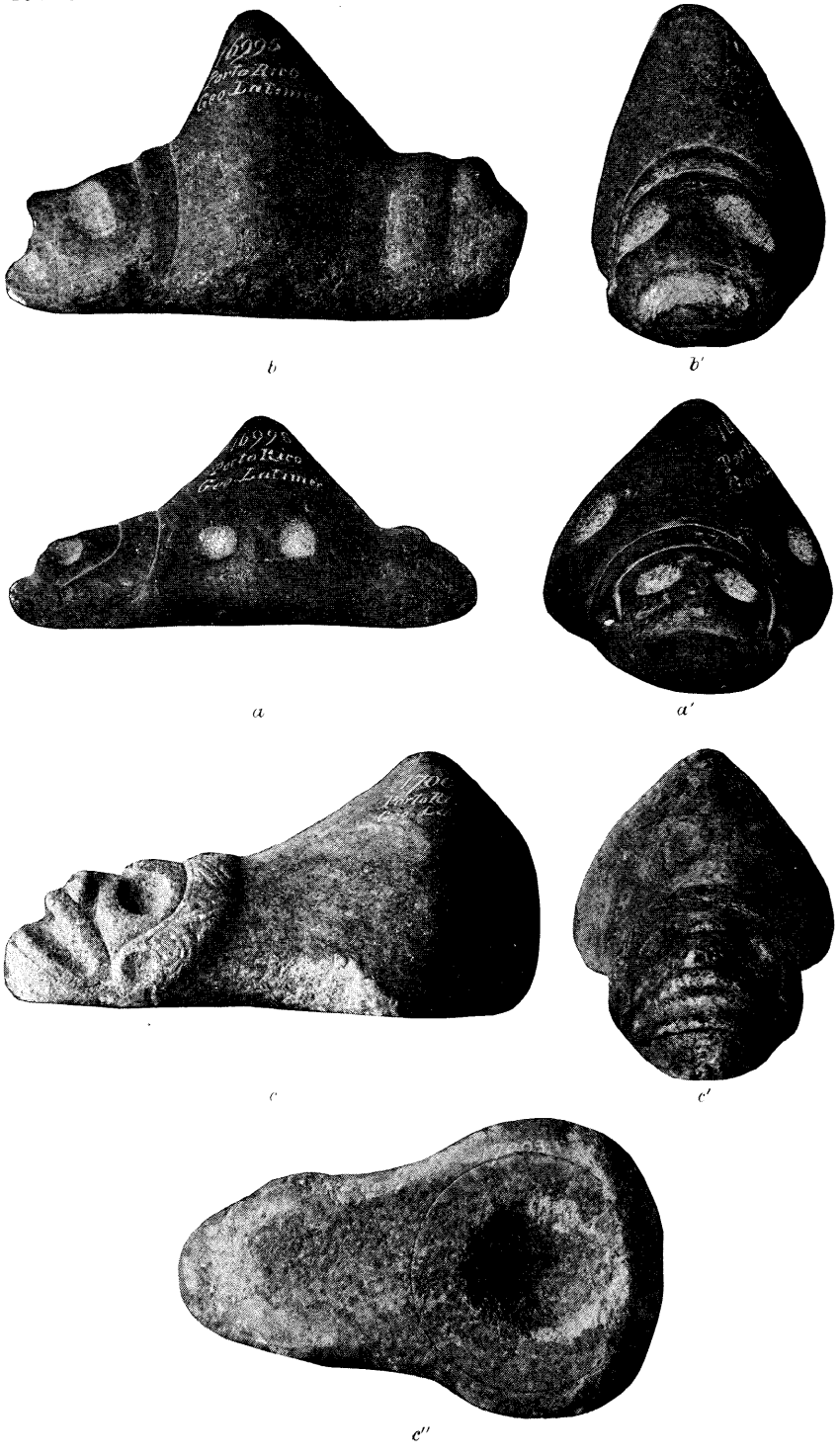


a *a′* *b* *b′* *b″*

THREE-POINTED STONES OF THE FIRST TYPE

a, *a′* Lateral and face views of specimen with broken side (Neumann collection); length 11⅛ inches

b, *b′*, *b″* Side, face, and top views of warped specimen (Latimer collection); length 11⅛ inches



THREE-POINTED STONES OF THE FIRST TYPE

a, *a'* Lateral and face views of specimen with two pits on each side (Latimer collection); length 6.15 inches
b, *b'* Lateral and face views of specimen (Latimer collection); length 5.6 inches
c, *c'*, *c''* Side, face, and base views of fragment (Latimer collection); length 12.8 inches

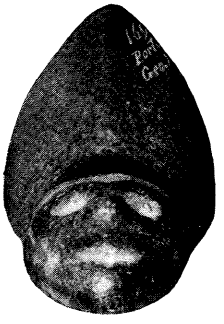
a

a'

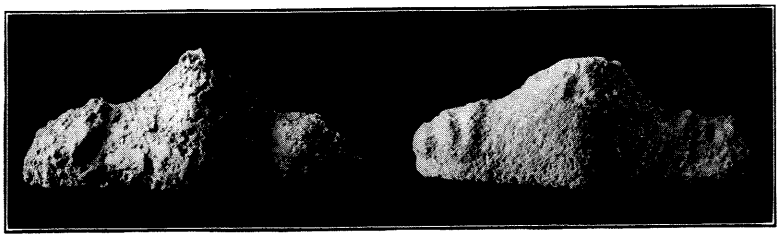
b

b'

c



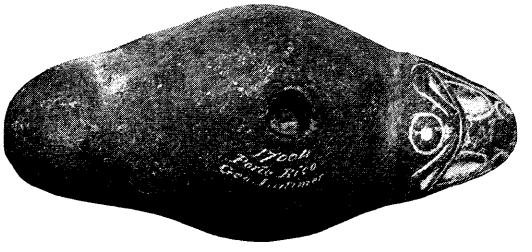
c'



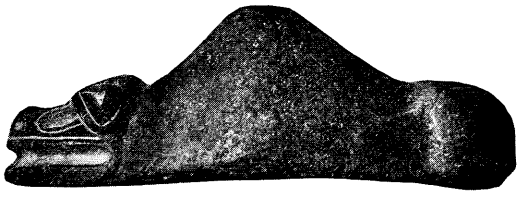
d *e*

THREE-POINTED STONES OF THE FIRST TYPE

a, *a'*, *b*, *b'* Face and lateral views of two fragments (Latimer collection); width 3 inches
c, *c'* Lateral and face views of specimen (Latimer collection); length 8 inches
d, *e* Two specimens with very much eroded surfaces; length 8¾ inches

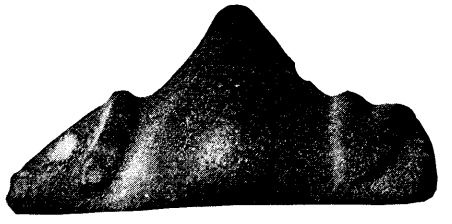


a

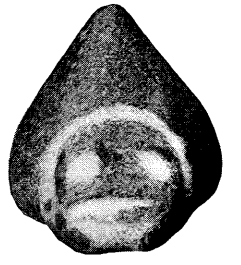


a'

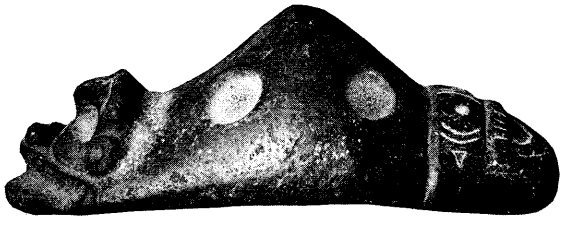
a''



b



b'



c

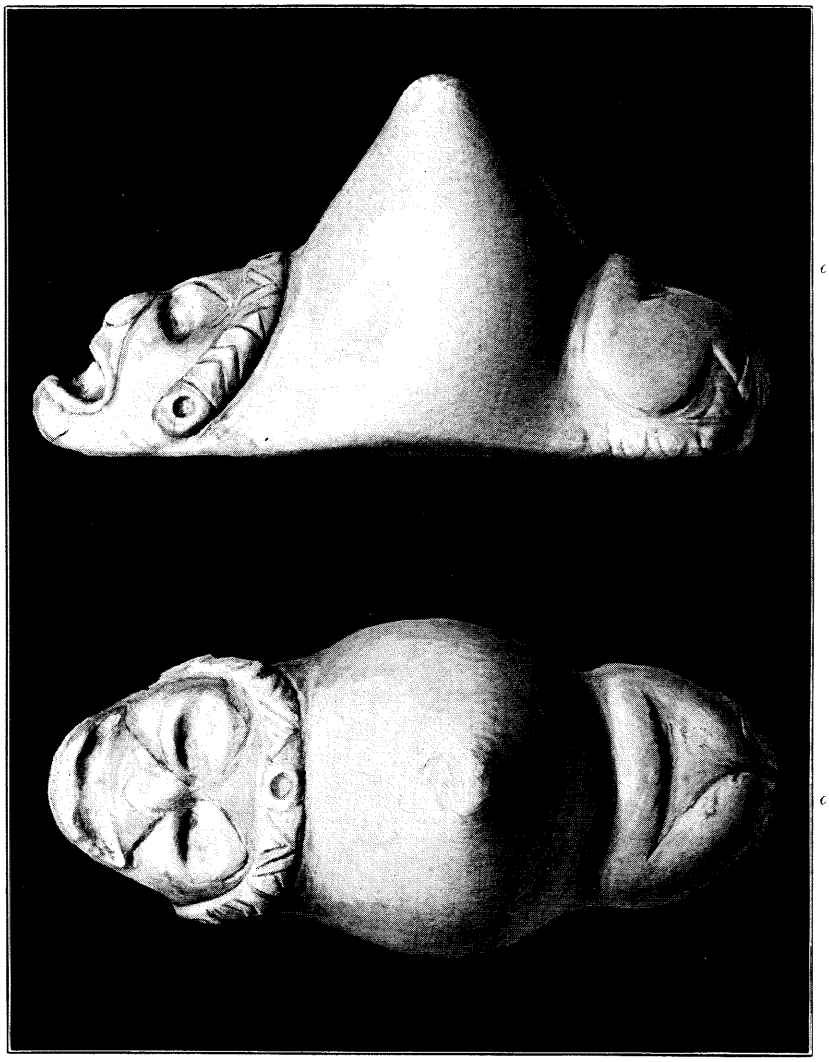
c'

THREE-POINTED STONES OF THE FIRST TYPE

a, *a'*, *a''* Top, lateral, and face views of specimen with depression in the top of the conical projection (Latimer collection); length 9.65 inches

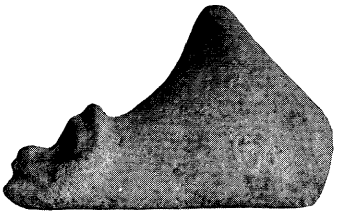
b, *b'* Lateral and face views of specimen with flat face (Latimer collection); length 7.95 inches

c, *c'* Lateral and face views of specimen with depressions on the side (Latimer collection); length 11.65 inches

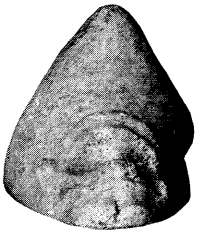


ad nat. M. W. Gill

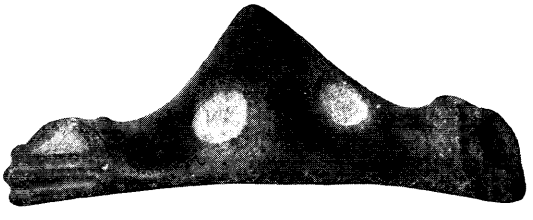
LATERAL (*a*) AND TOP (*a'*) VIEWS OF A THREE-POINTED STONE OF THE FIRST TYPE; 5⅛ BY 2¾ INCHES



a

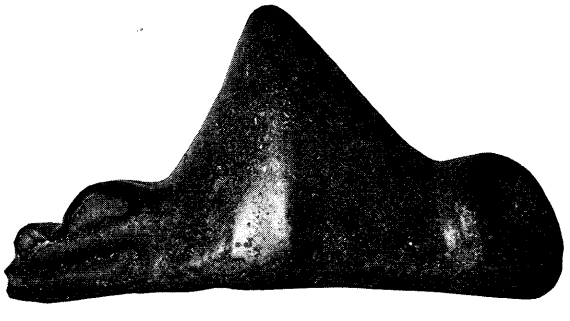


a′



b

b′

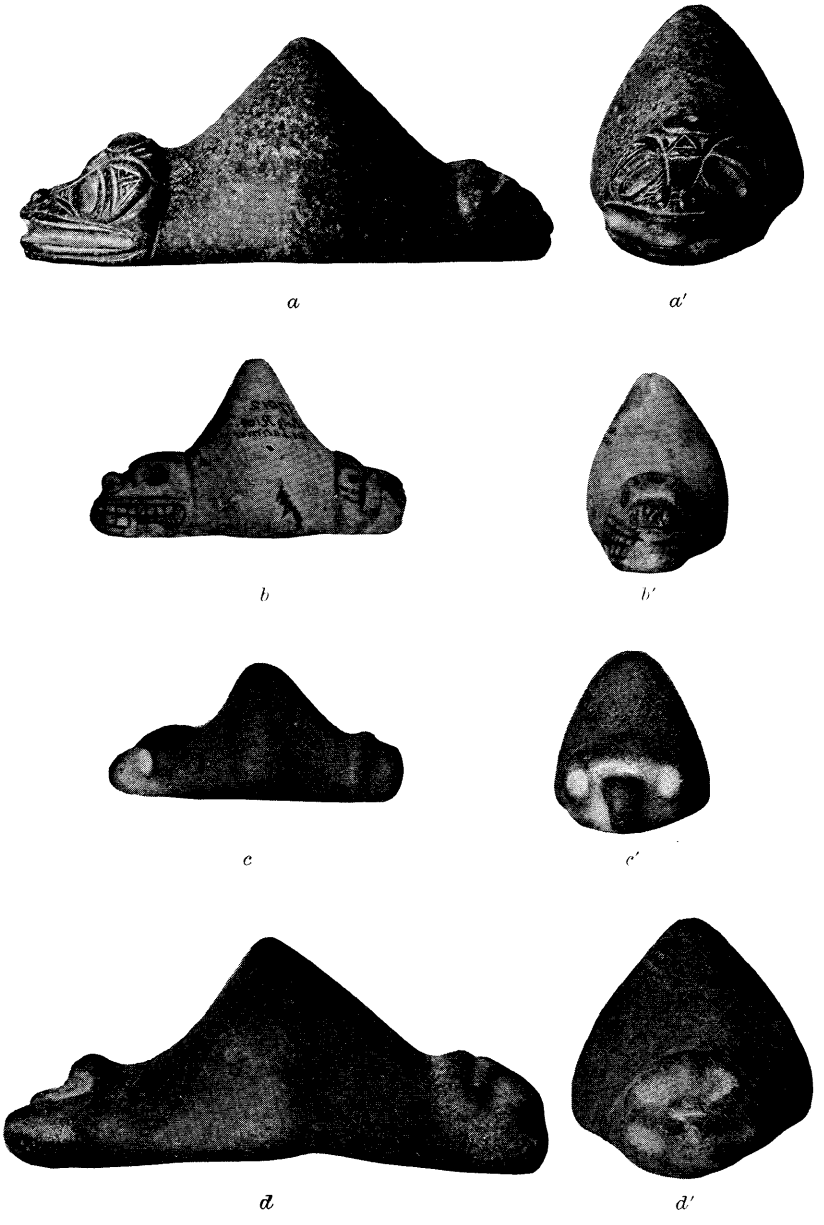


c

c′

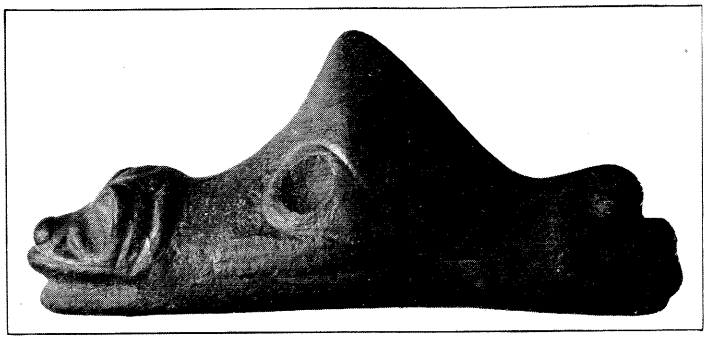
THREE-POINTED STONES OF THE FIRST TYPE

a, *a′* Lateral and face views of a fragment; length 5⅛ inches
b, *b′* Lateral and face views of lizard-formed specimen; length 10 inches
c, *c′* Lateral and face views of lizard-formed specimen (Zoller collection); 11¼ by 5⅛ inches



THREE-POINTED STONES OF THE FIRST TYPE

a, *a′* Lateral and face views of specimen with lizard head (Latimer collection); length 12.55 inches
b, *b′* Lateral and face views of specimen with lizard head (Latimer collection); length 4.85 inches
c, *c′* Lateral and face views of specimen with bird's head (Latimer collection); length 6.3 inches
d, *d′* Lateral and face views of specimen with rude face (Latimer collection)



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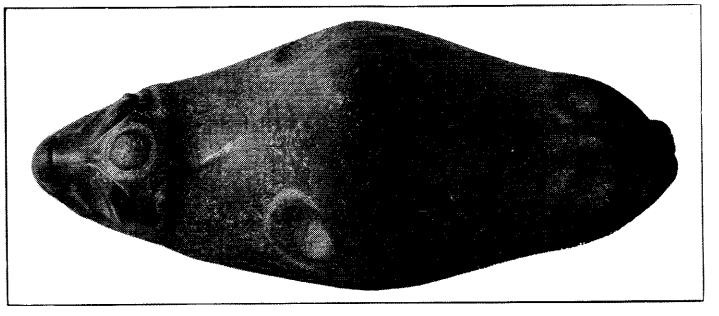
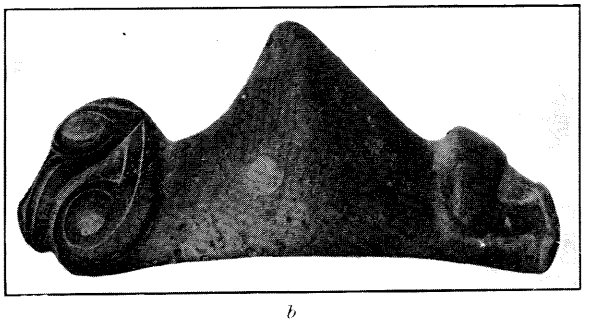
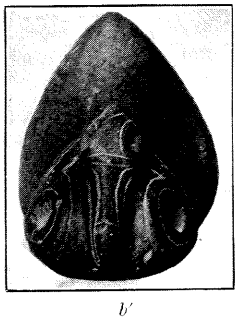


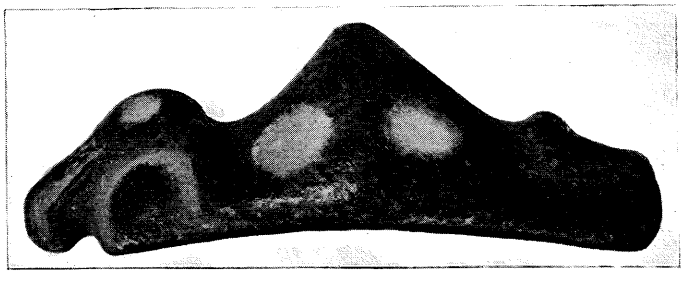
a′



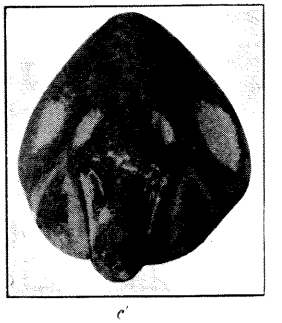
b



b′



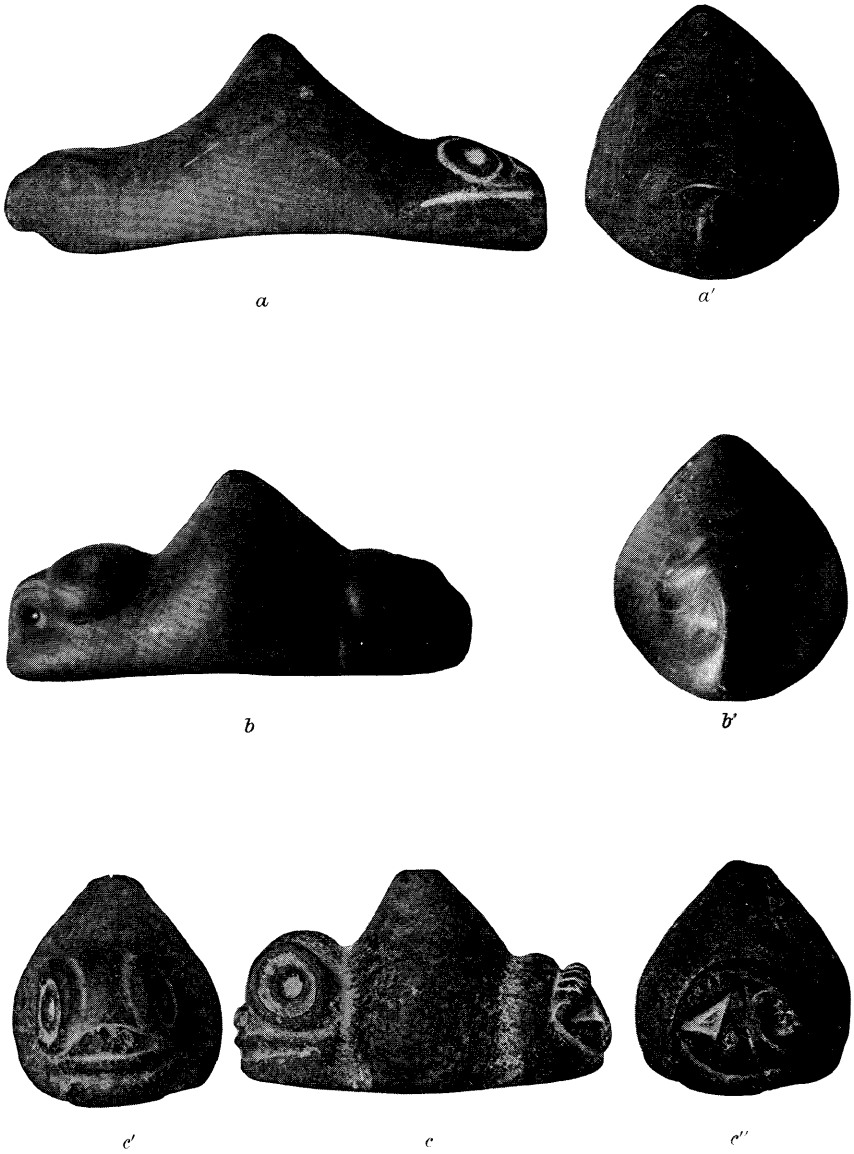
c



c′

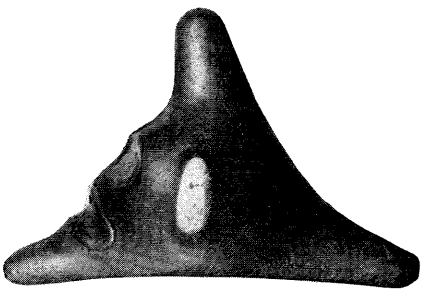
THREE-POINTED STONES OF THE FIRST TYPE

a, *a′* Lateral and top views of a lizard-headed specimen (Zoller collection); length 11⅛ inches
b, *b′* Lateral and face views of a bird-headed specimen, duck shape (Latimer collection); length 11.95 inches
c, *c′* Lateral and face views of a bird-headed specimen with two lateral pits (Neumann collection); 11¼ by 4 inches



THREE-POINTED STONES OF THE FIRST TYPE

a, *a'* Bird-shaped specimen (Neumann collection); length 10 inches
b, *b'* With bird head (Latimer collection); length 6.85 inches
c, *c'*, *c''* Lateral, face, and rear views of an owl-headed specimen (Latimer collection); length 4.95 inches



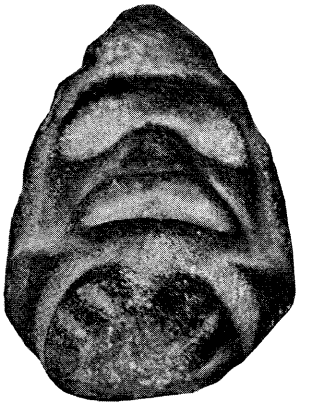
a

a′

b

b′

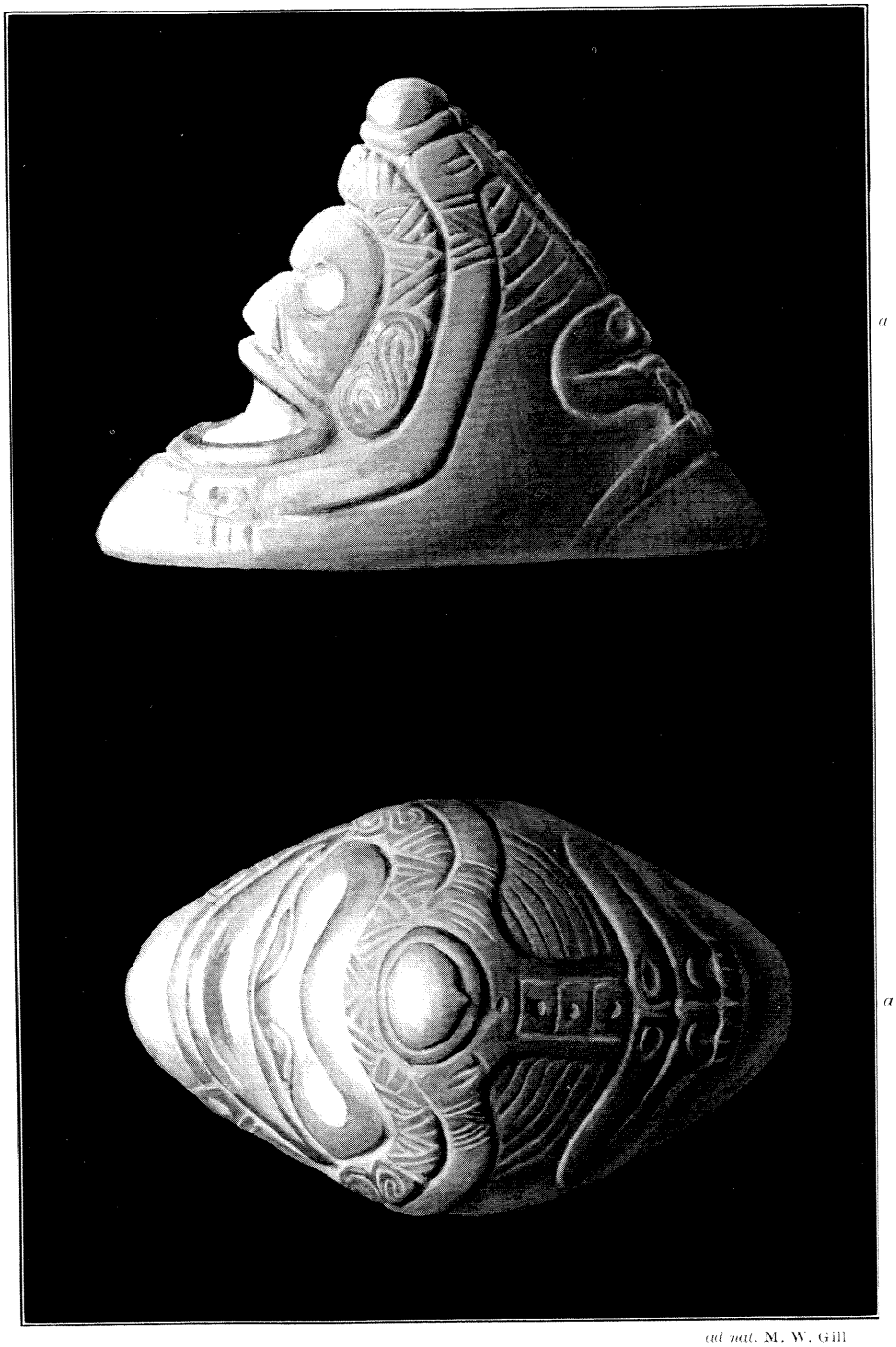
c



c′

THREE-POINTED STONES OF THE SECOND TYPE

a, *a′* Lateral and face views (Latimer collection): length 4½ inches
b, *b′* Lateral and face views; length 8 inches
c, *c′* Lateral and face views of specimen with appendages; length 7⅜ inches



a

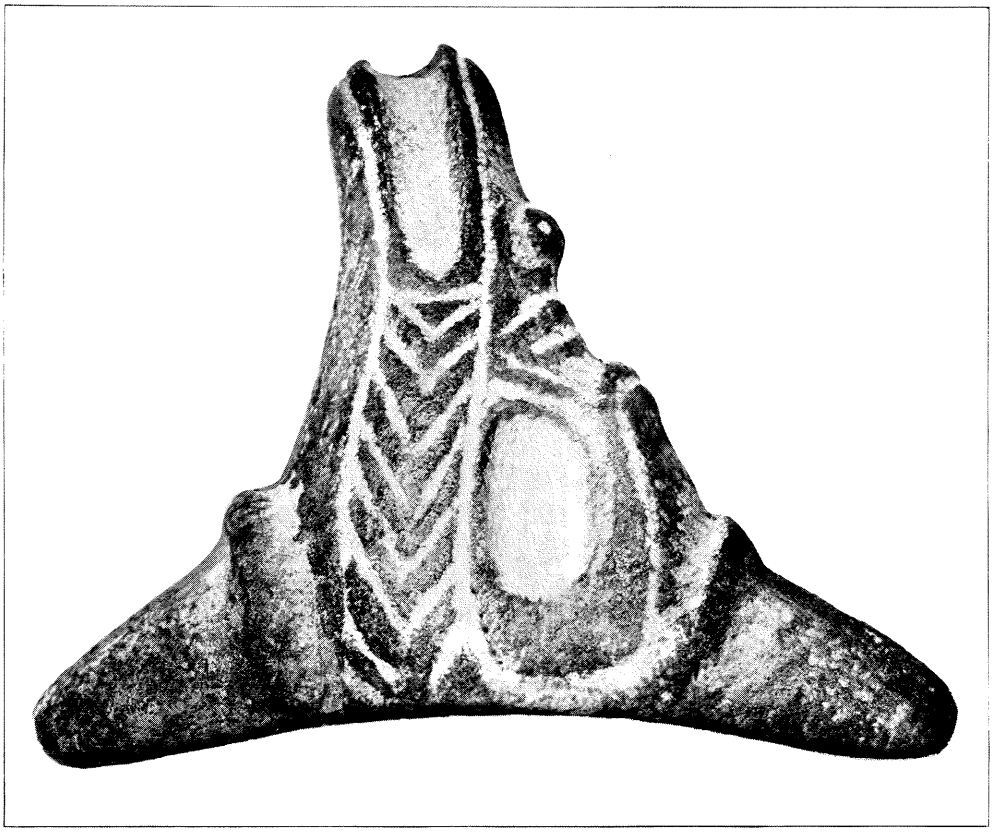
a

ad nat. M. W. Gill

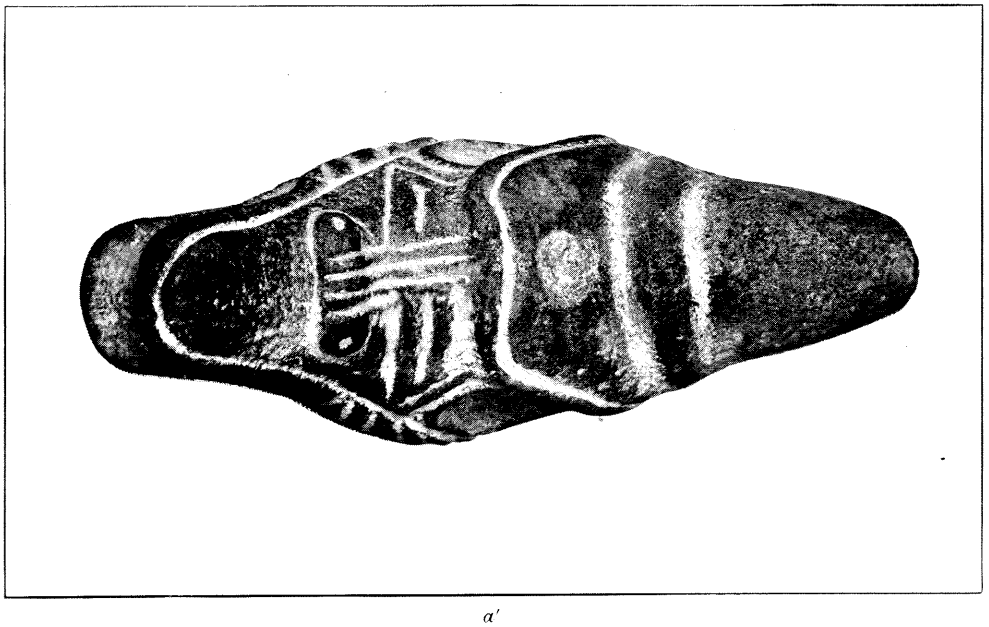
LATERAL AND TOP VIEWS OF A THREE-POINTED STONE OF THE SECOND TYPE (LATIMER COLLECTION); LENGTH 3 INCHES

ad nat. M. W. Gill

LATERAL AND REAR VIEWS OF A THREE-POINTED STONE OF THE SECOND TYPE, LENGTH 4. INCHES



a

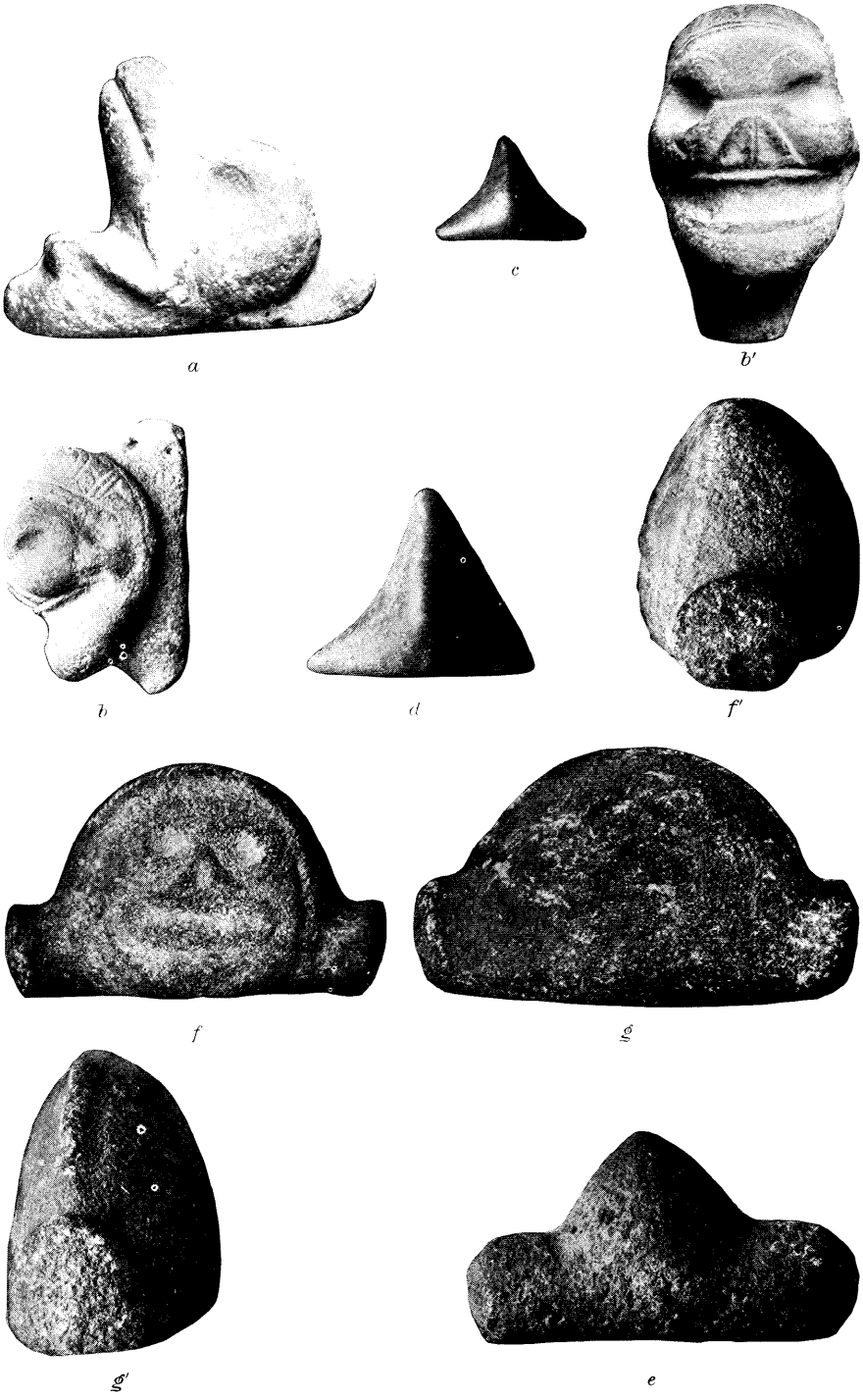


a'

LATERAL (*a*) AND TOP (*a'*) VIEWS OF A THREE-POINTED STONE OF THE THIRD TYPE (ARCHBISHOP MERIÑO COLLECTION); LENGTH 9 INCHES

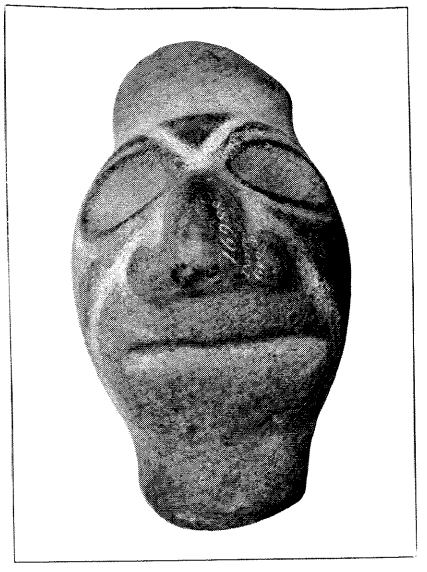
del. auct. M. W. Gill

LATERAL (*a*) AND TOP (*b*, *b'*) VIEWS OF A THREE-POINTED STONE OF THE THIRD TYPE
(NEUMANN COLLECTION ; LENGTH 4. INCHES

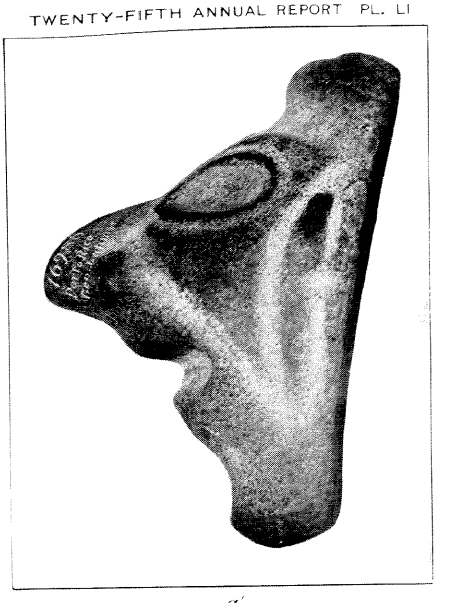


THREE-POINTED STONES AND STONE DISKS

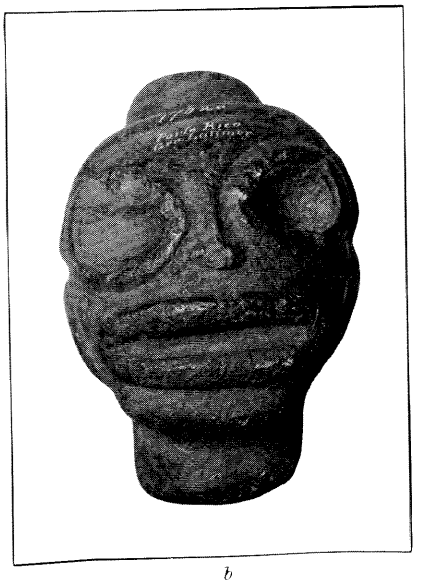
a Lateral view of a specimen of the third type (Archbishop Meriño collection): length 10¾ inches
b, *b'* Lateral and face views of head; length 9⅛ inches
c, *d* Three-pointed specimens of the fourth type; lengths 3¾ and 4⅛ inches
e Three-pointed specimen of the fourth type; 8 by 4¾ inches
f, *f'* Face and side views of semicircular specimen with face; 7 by 4; 8 inches
g, *g'* Face and side views of semicircular specimen with face



a



a'

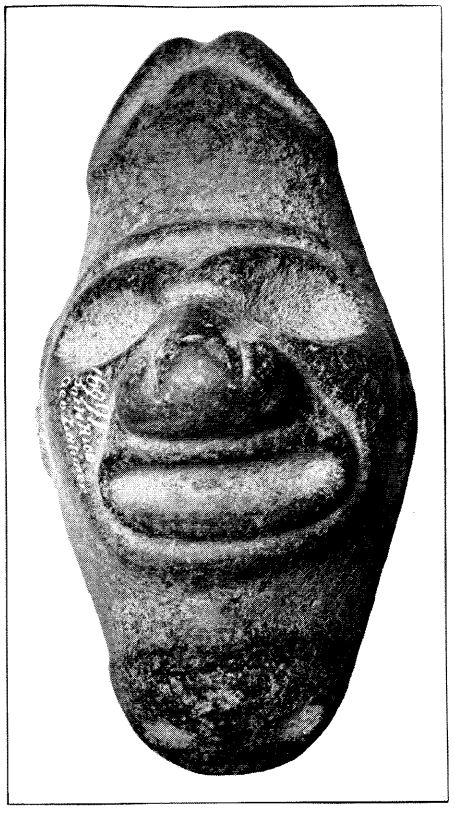


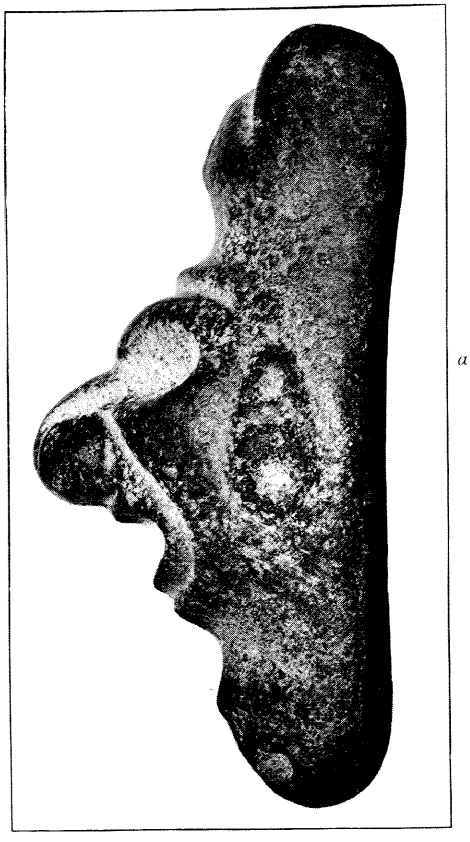
b

b'

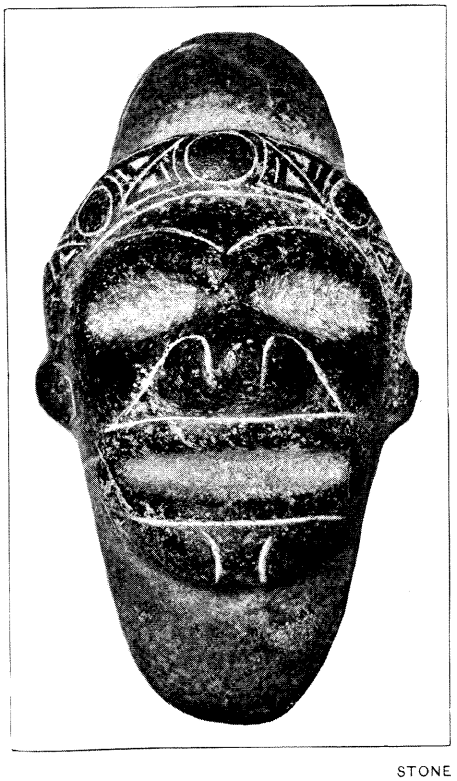
STONE HEADS

a, *a'* Lateral and front views (Latimer collection): length 8.65 inches
b, *b'* Lateral and front views (Latimer collection): length $6\frac{1}{2}$, height $3\frac{1}{8}$, width 4 inches





a

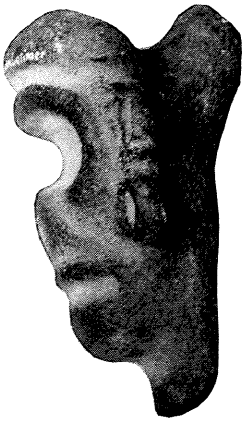


b

STONE HEADS

a, *a'* Front and lateral views of specimen (Latimer collection): 9¼ by 4 inches
b, *b'* Front and lateral views of mask-like face: 7⅞ by 2¾ inches

a



a'

b

b'

c

c'

STONE HEADS

a, *a'* Front and lateral views; length 7¼, width 5 inches
b, *b'* Front and lateral views (Latimer collection); length 7 inches
c, *c'* Front and lateral views (Latimer collection); 7½ by 3¾ inches

STONE HEADS

a, *a'* Front and lateral views of rude head with neck; 9 by 5⅝ inches
b, *b'* Front and lateral views of head (Latimer collection); 5 by 4¼ inches
c, *c'* Front and lateral views of disk; 6 by 4¼ inches

a

a'

d

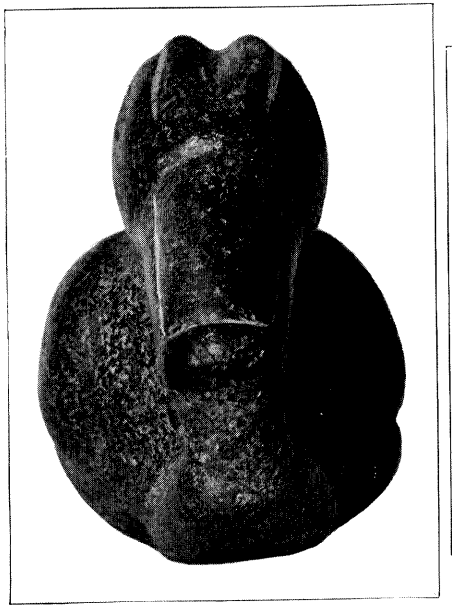
c

b

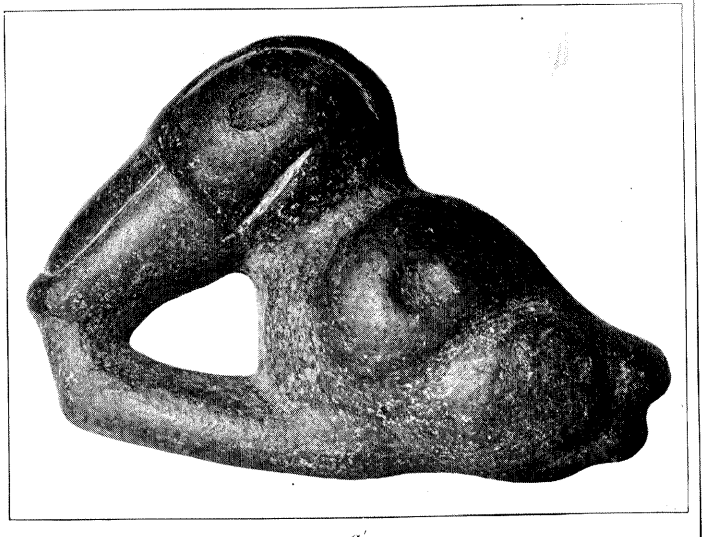
e

STONE DISKS WITH FACES

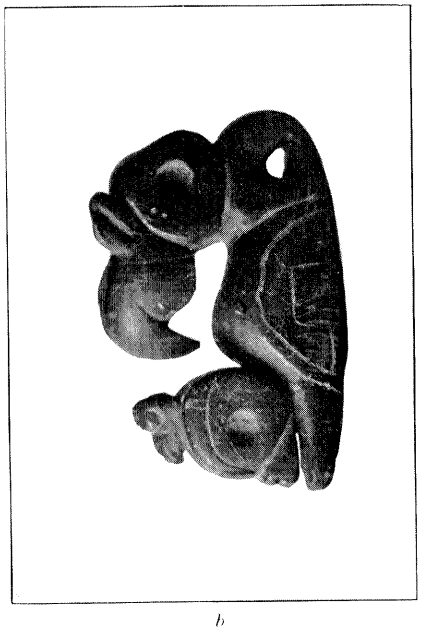
a, *a'* Front and lateral views of face: 5¼ by 4 inches
b Front view of face: 4⅝ by 3¾ inches
c Front view of face: 5⅝ by 5 inches
d Fragment of face: width 3⅛ inches
e Fragment of face (Neumann collection): width 3 inches



a



a'

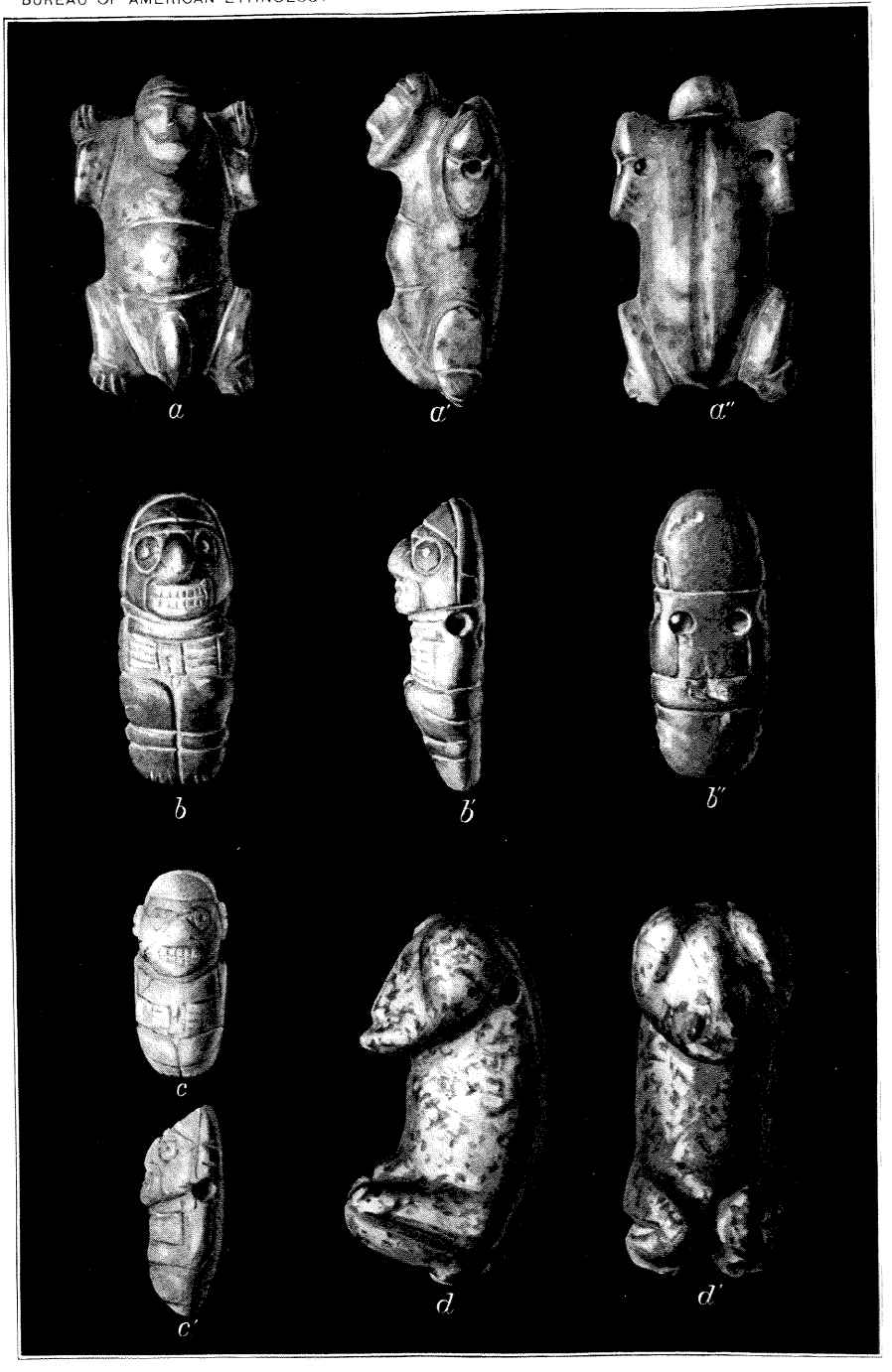


b

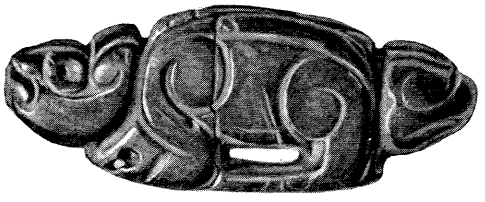
STONE FETISHES

a, *a'* Front and lateral views of bird (Neumann collection); 5¾ by 4 inches

b Lateral view of bird or scorpion, Trinidad, British West Indies; length 1¾ inches

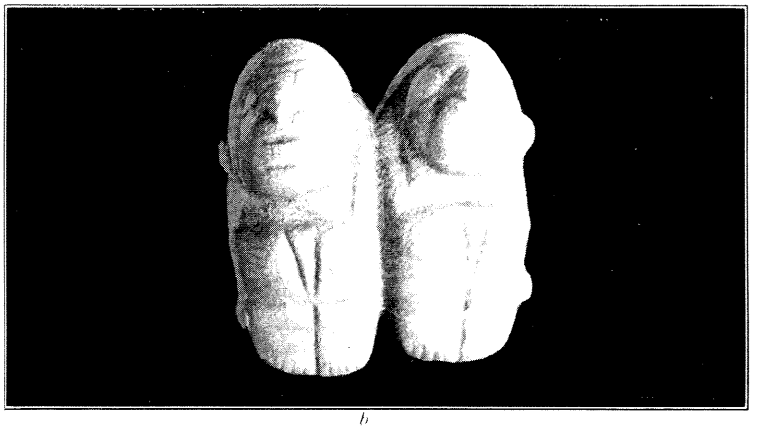


STONE AMULETS, PORTO RICO

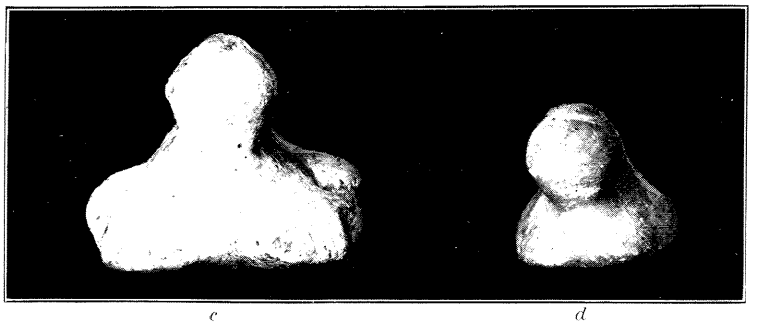


a

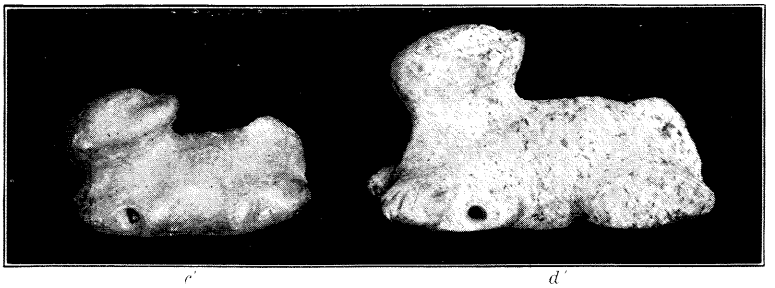
a' *del mat.* M. W. Gill.



b



c *d*



c' *d'*

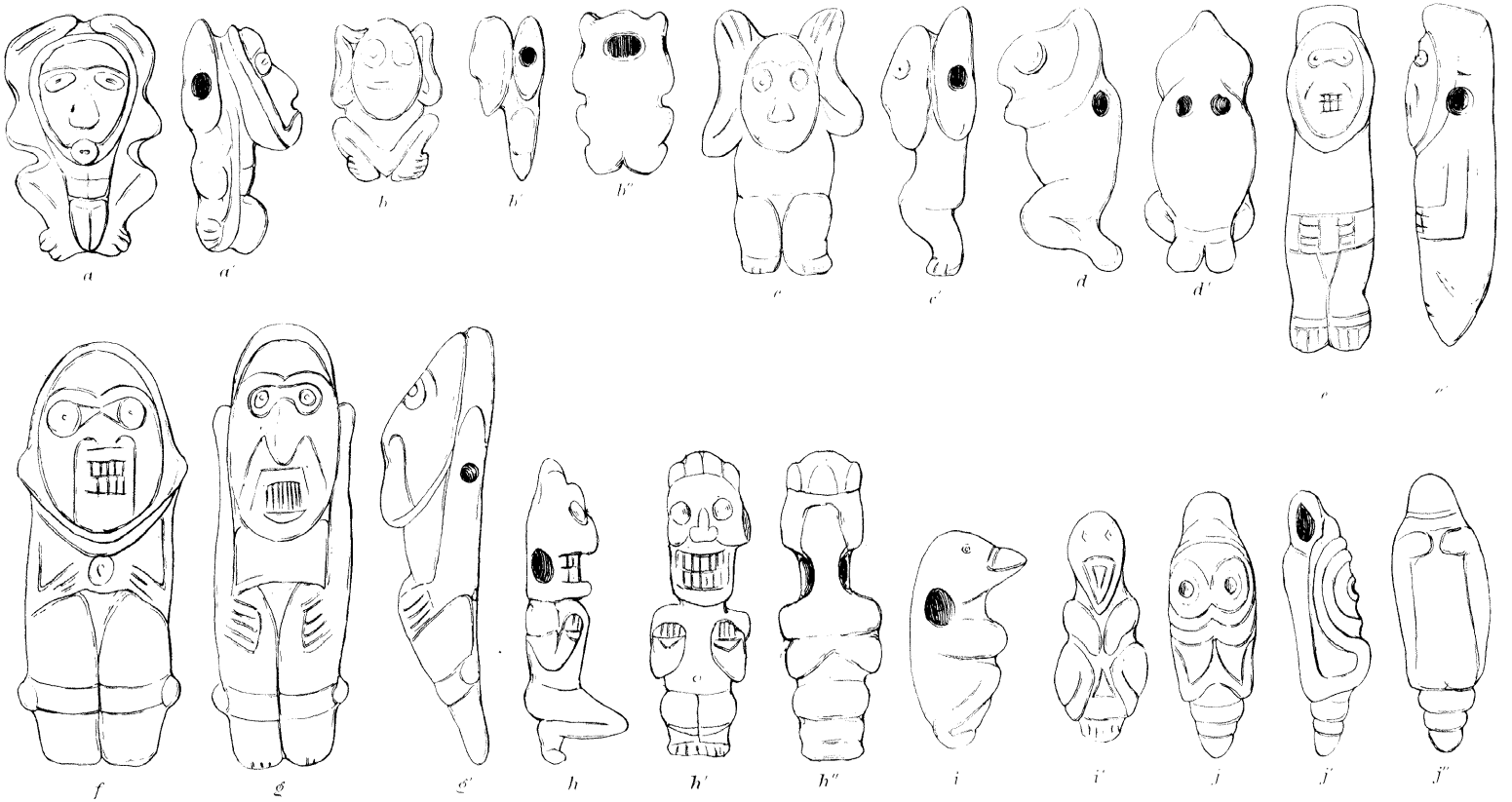
STONE AMULETS

a, *a'* Lateral and top views of animal of unknown character, Trinidad, British West Indies; natural size.

b Twin amulet, Santo Domingo (Archbishop Meriño collection); length 1¼, width 1¼ inches.

c, *c'* Front and lateral views; natural size.

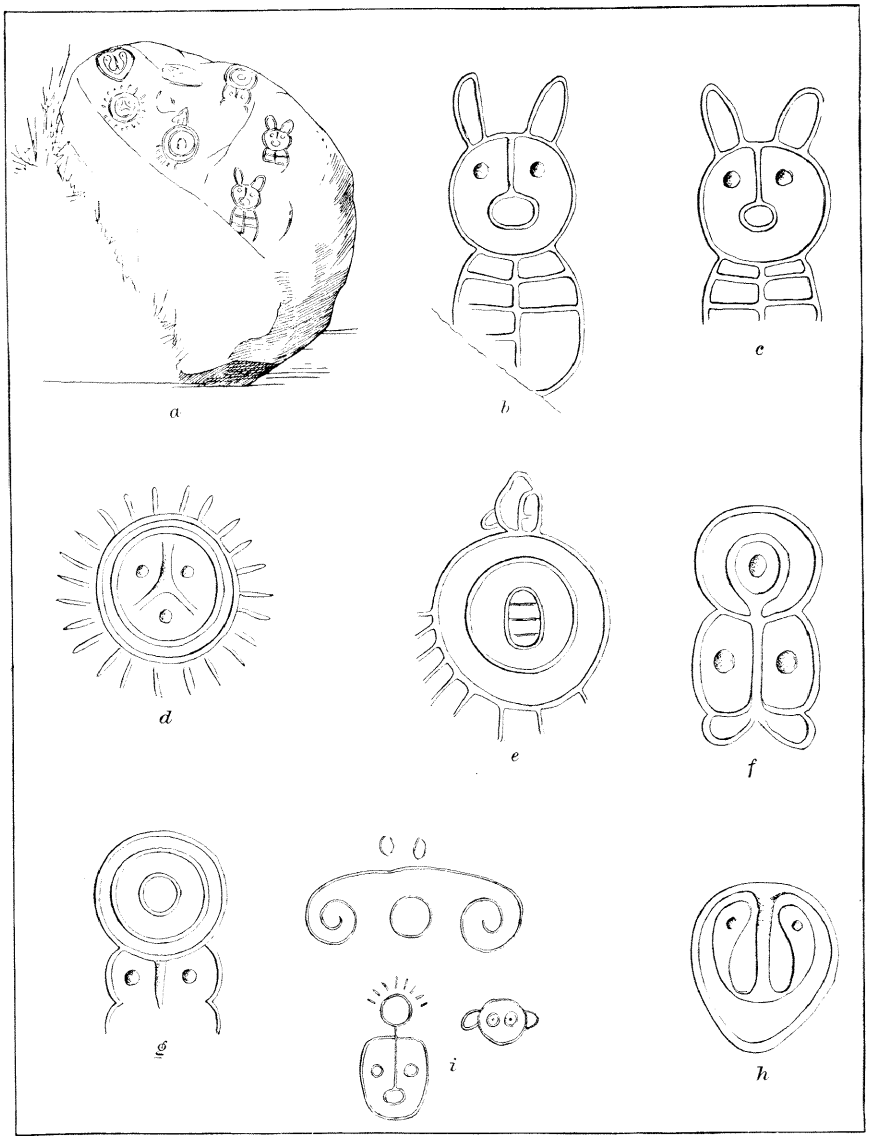
d, *d'* Front and lateral views; natural size.



STONE AMULETS, SANTO DOMINGO

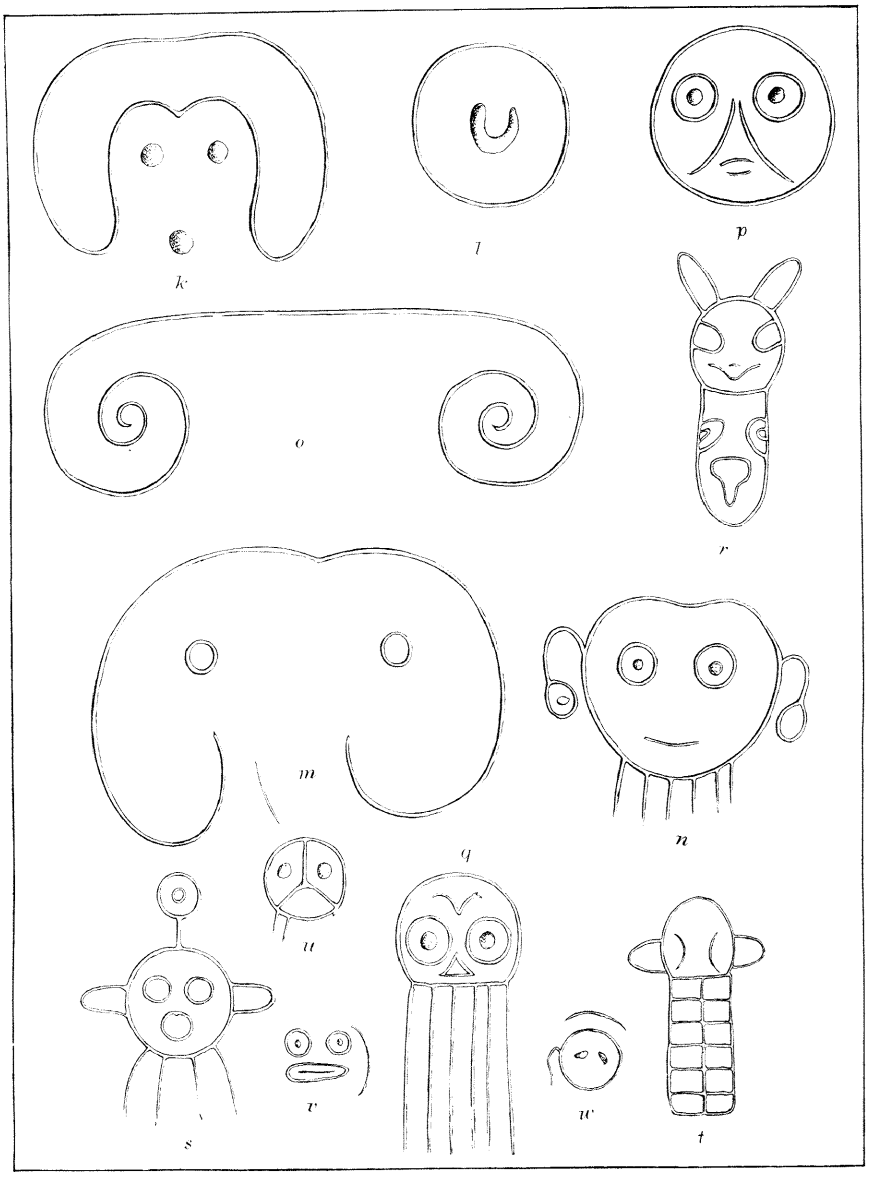
a, *a'* Front and lateral views (Hall collection)
b, *b'*, *b''* Front, lateral, and rear views (Hall collection)
c, *c'* Front and lateral views (Hall collection)
d, *d'* Front and lateral views (Hall collection)
e, *e'* Front and lateral views (Imbert collection)

f Front view (Imbert collection)
g, *g'* Front and lateral views (Imbert collection)
h, *h'*, *h''* Side, front, and rear views (Imbert collection)
i, *i'* Lateral and ventral views (Hall collection)
j, *j'*, *j''* Ventral, lateral, and dorsal views (Hall collection)



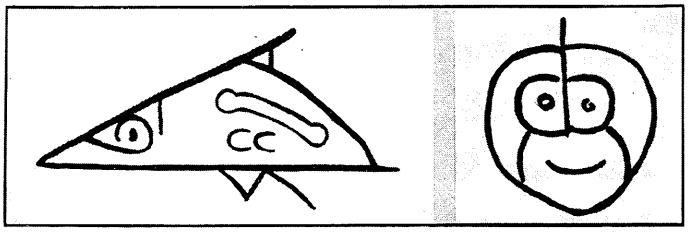
PORTO RICAN RIVER PICTOGRAPHS

a On bowlder, near Utuado
b, *c* With horns on head
d, *e* Sun
f Of unknown meaning
g Of unknown meaning
h From "El Salto del Merovis"
i Of unknown meaning

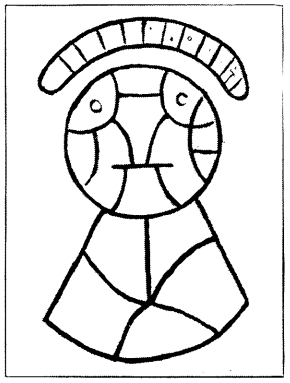


PORTO RICAN RIVER PICTOGRAPHS

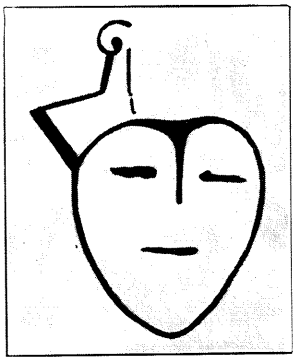
k Human face
l Representing the moon
m Representing face
n Human face
o Two spirals, water symbol
p Human face
q Representing head
r Representing human head and body
s Face with circle
t Human head and body
u, *v*, *w* Of unknown meaning



a *b*

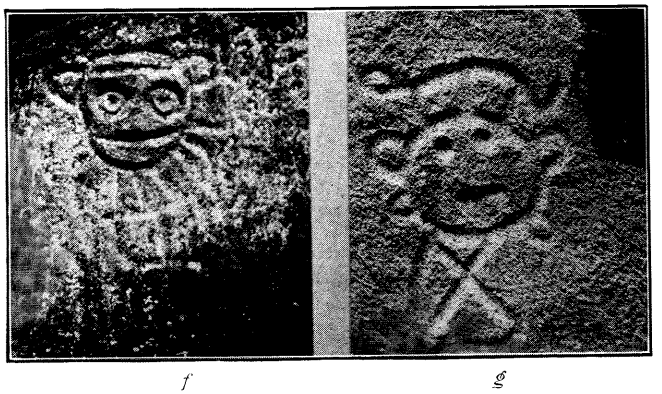


c



d

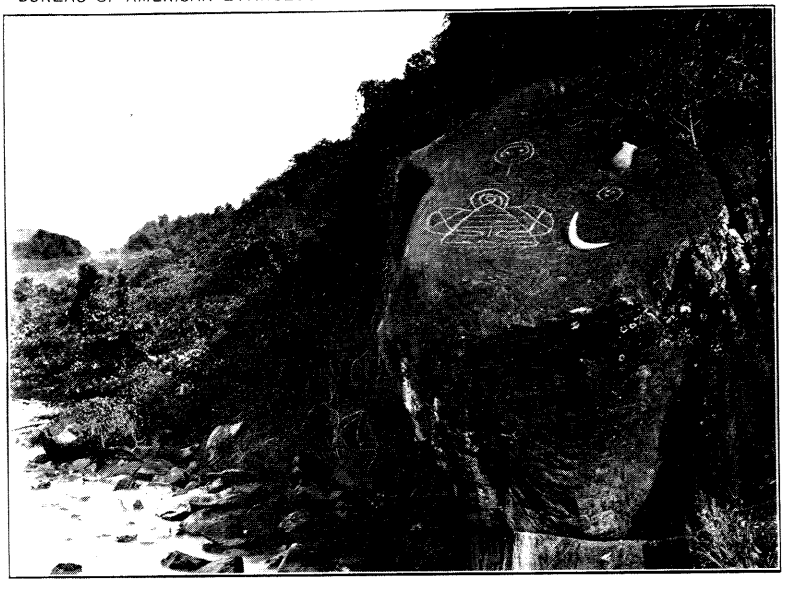
e



f *g*

PORTO RICAN PICTOGRAPHS

a, b, c, d From cave near Ponce
e, f, g From eastern end of Porto Rico

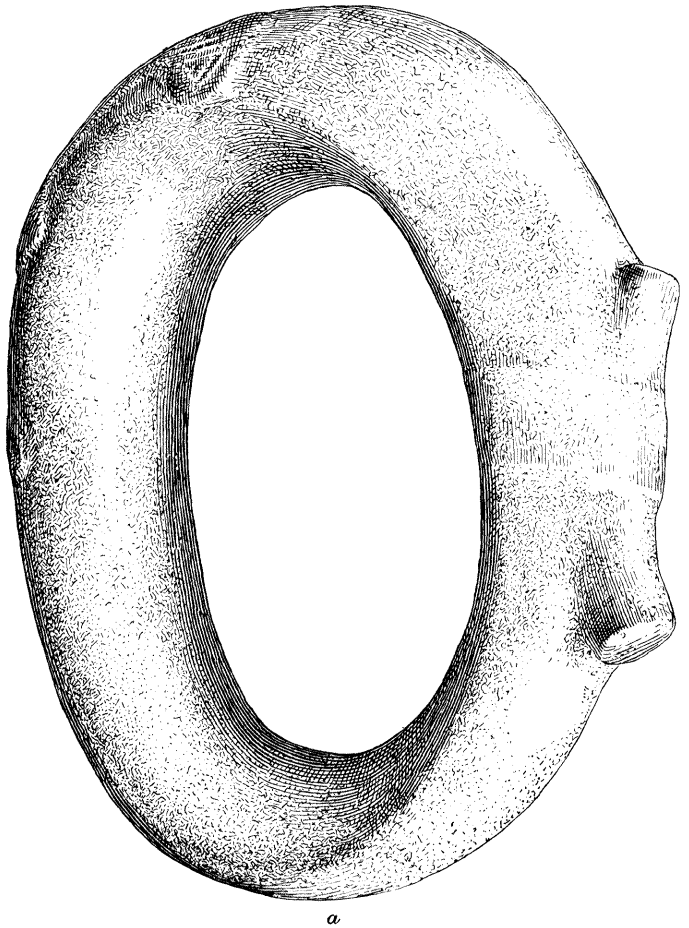


CARIB PICTOGRAPHS, ST VINCENT, BRITISH WEST INDIES

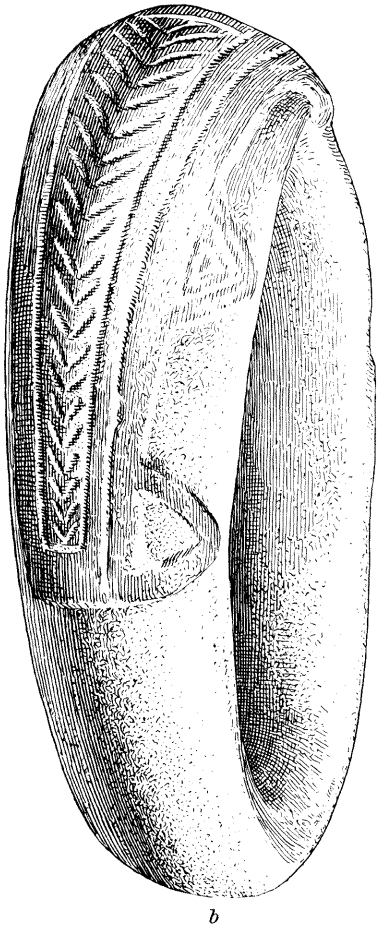
a *b*

MASSIVE STONE COLLARS

a 17⅛ by 14 inches
b 19 by 16 inches



a



b

MASSIVE STONE COLLAR

a Front view, 19 inches
b Side view, 6 inches

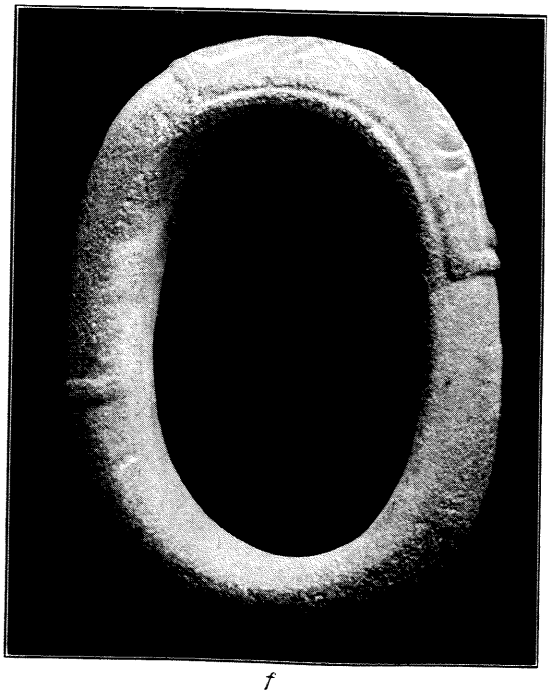
a

b

c

d

e

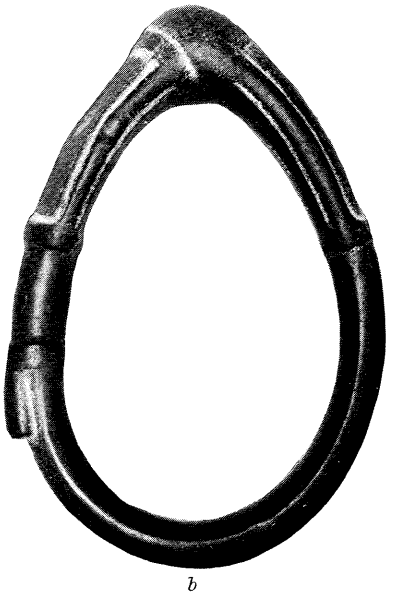


f

MASSIVE STONE COLLARS

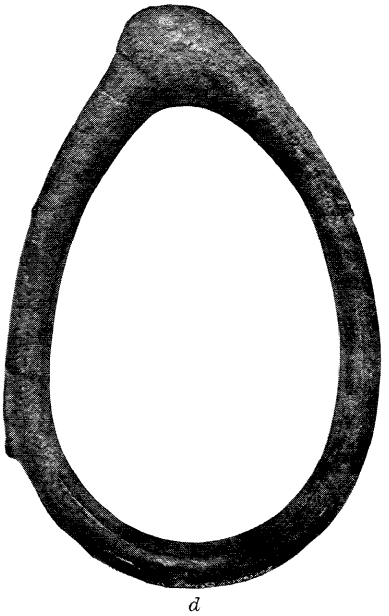
a 17⅛ by 15 inches
b 18 by 13¼ inches
c 17½ by 13 inches
d 19 by 14¾ inches
e 14⅜ by 9 inches
f 18 by 13⅛ inches

a



b

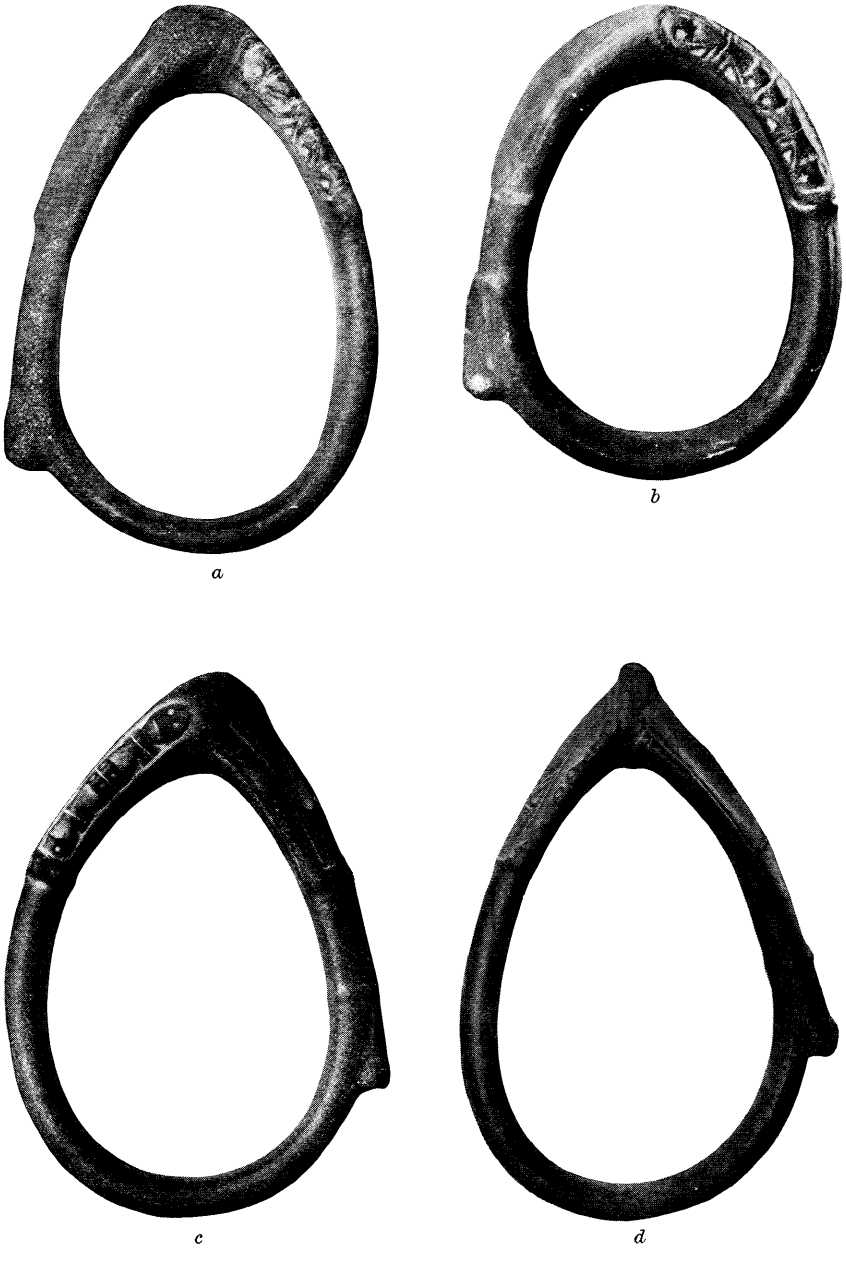
c



d

SLENDER OVATE STONE COLLARS

a Specimen (Latimer collection): 17 by 11 inches
b Well-polished specimen (Neumann collection): 15¼ inches
c Simple specimen (Latimer collection): 15 inches
d With heart-shaped projection (Latimer collection): 15 inches



SLENDER OVATE STONE COLLARS (LATIMER COLLECTION)

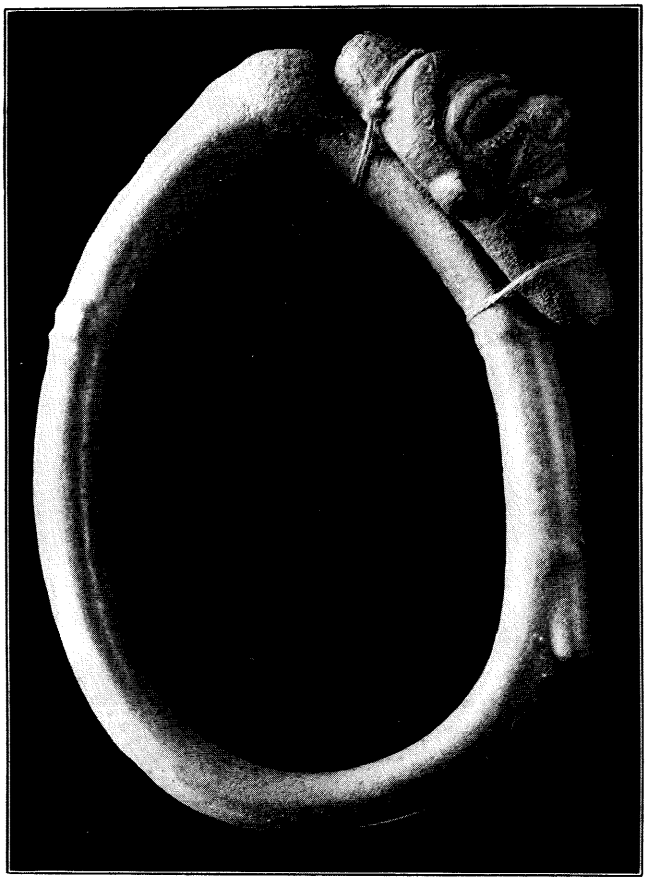
a With decorated panel border; 18⅜ by 12¼ inches
b With decorated panel border; 18 by 12⅛ inches
c With head on projection; 17¼ by 11¼ inches
d With decorated panel border; 18⅛ by 12¼ inches

b

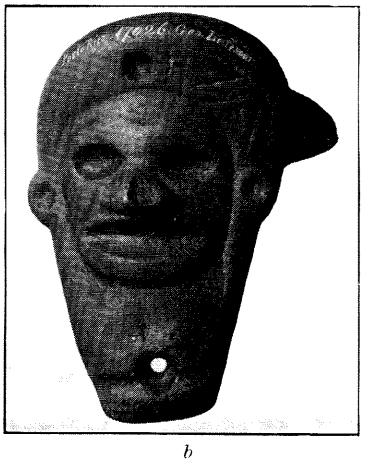
c

PANELS OF SLENDER OVATE COLLARS (LATIMER COLLECTION)

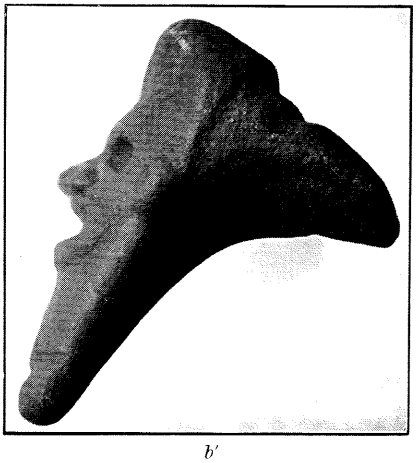
a Partially decorated specimen, size about 9 inches
b Sun figures; size about 9 inches
c Unknown figures, size about 9 inches



a



b



b'

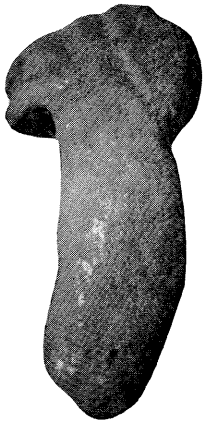
STONE COLLAR AND ELBOW STONE

a Stone collar with attached three-pointed stone; diameter 16¾ inches
b, *b'* Face and lateral views of an elbow stone (Latimer collection); length 7¼ inches

a *b* *c* *d*

PILLAR STONES

a With face, body, and appendages cut in relief; length 2 feet 4⅛ inches
b With face in relief (Latimer collection); length 25⅝ inches
c With face and part of the body cut in relief (Gabb collection); length 23⅛ inches
d With face cut in outline (Latimer collection); length 2 feet 5 inches



a

b

c

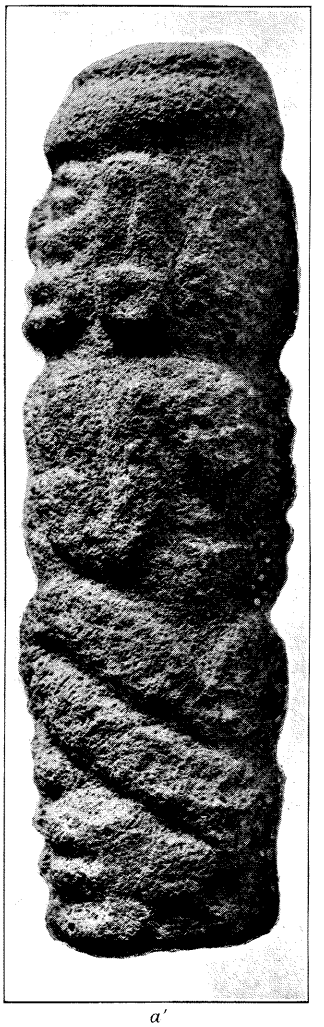
d

a′

FRAGMENTS OF PILLAR STONES WITH HEAD OR FACE IN RELIEF (LATIMER COLLECTION)

a, *a′* 9⅜ by 4⅛ inches
b 15½ by 12 inches
c 16 by 7 inches
d 3 feet 6 inches

a



a'

b

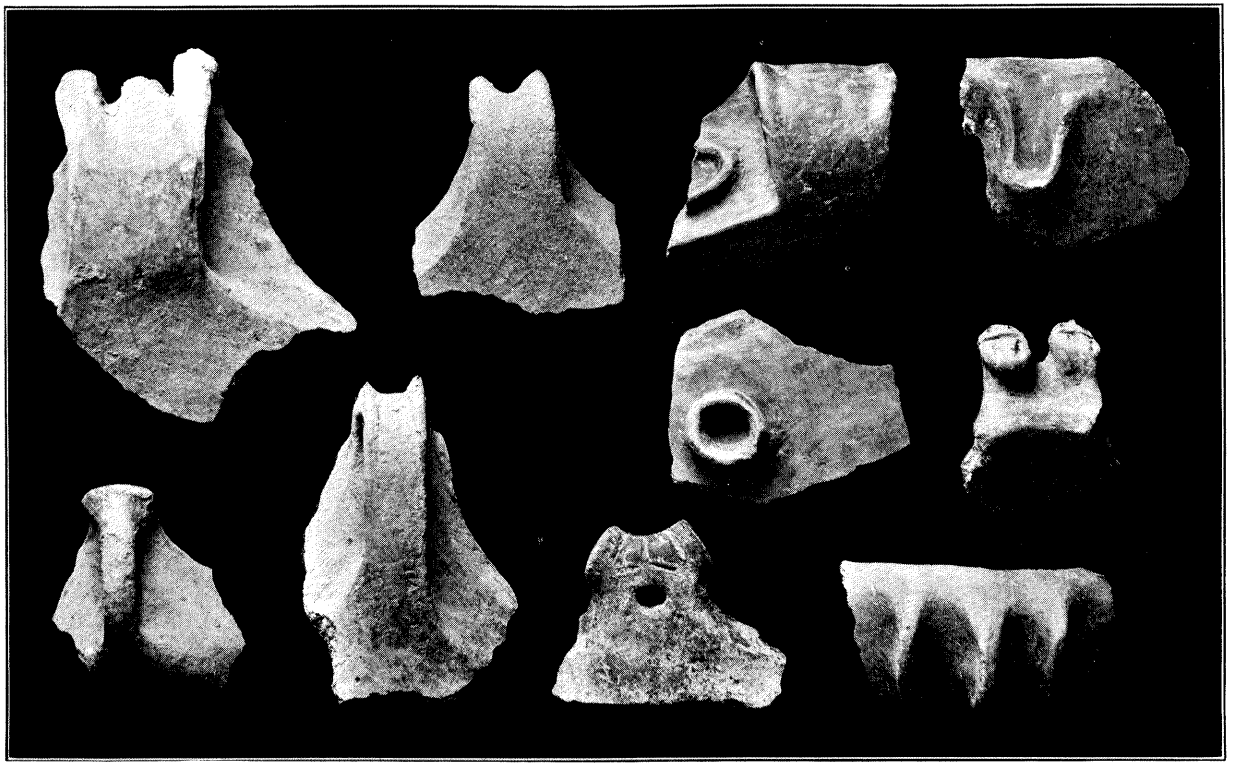
c

STONE IDOLS FROM CUBA

a, *a'* Front and lateral views of specimen made of coral rock (Santiago de Cuba Museum). (Reduced one-half)

b Engraved stone, Nipe bay. (Reduced one-half)

c Specimen made of coral rock in form of a pestle (Santiago de Cuba Museum). (Reduced one-half)

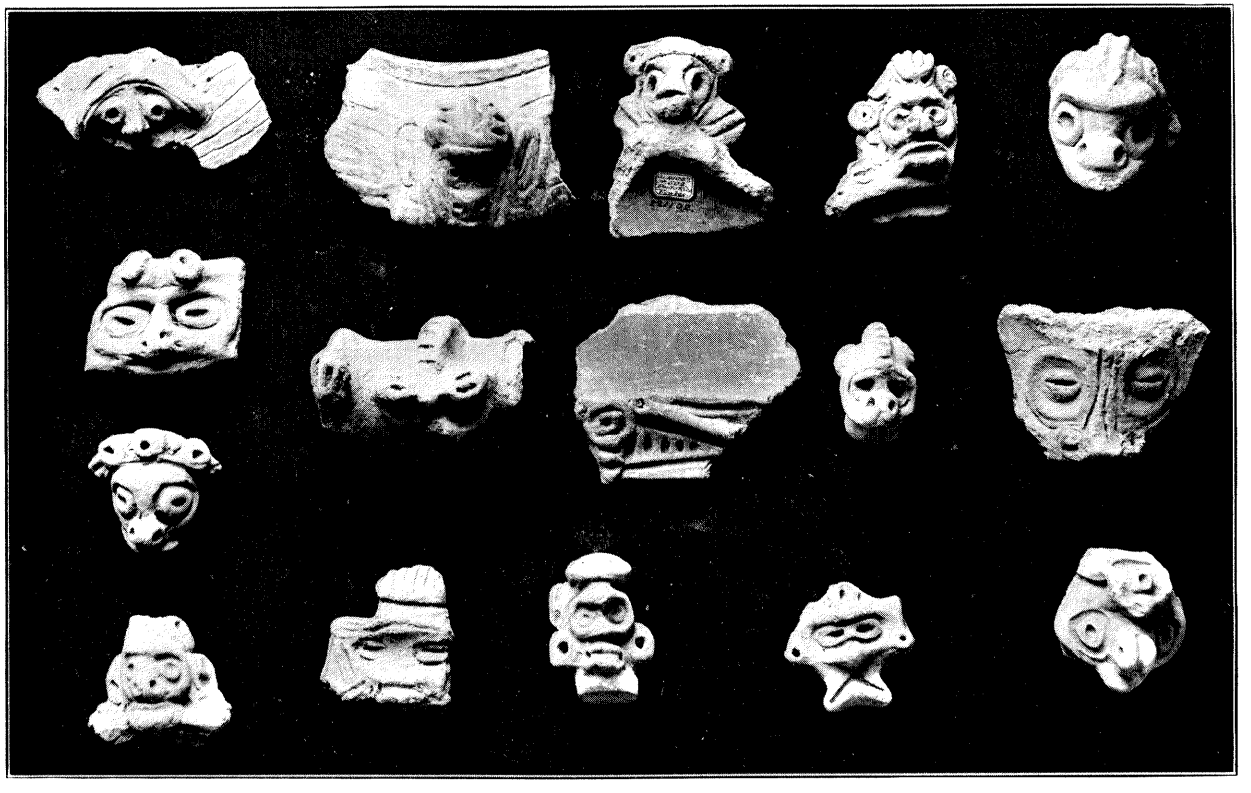


HANDLES OF POTTERY FROM CUEVA DE LAS GOLONDRINAS, PORTO RICO

(One-half natural size)

POTTERY HEADS, FRAGMENTS OF BOWLS, SANTO DOMINGO

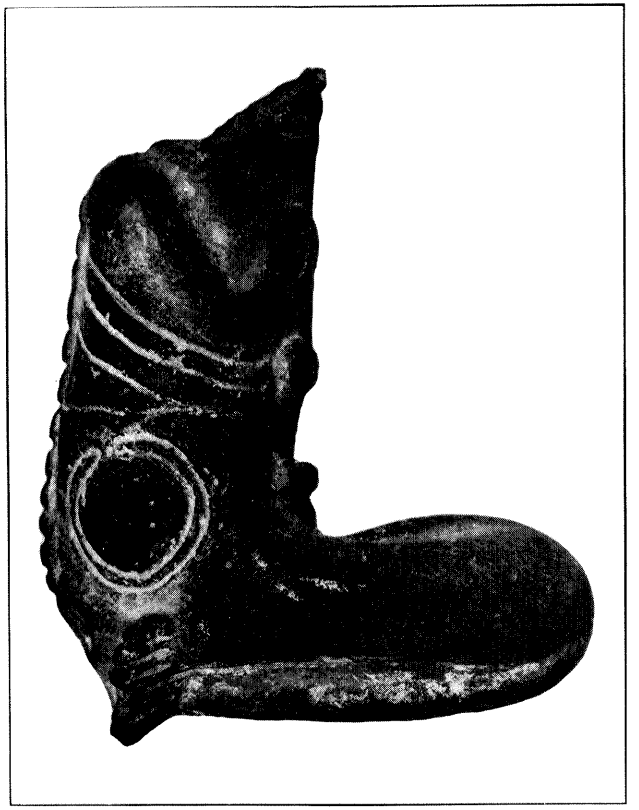
(One-half natural size)



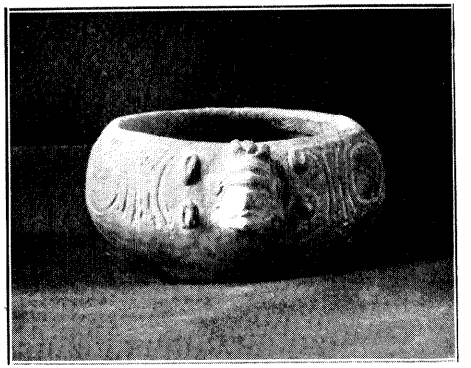
FRAGMENTS OF POTTERY BOWLS, SANTO DOMINGO

(One-half natural size)

a



a'



b

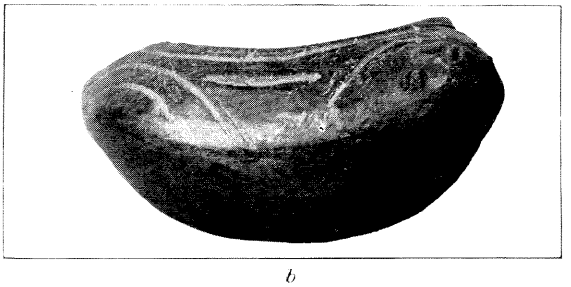
c

POTTERY FROM SANTO DOMINGO

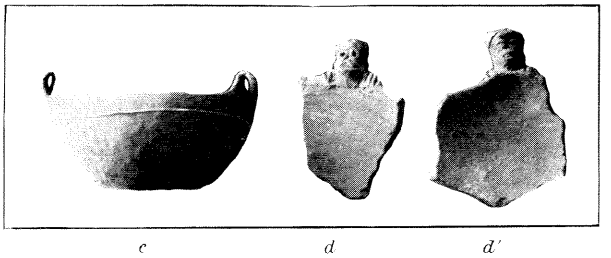
a, *a'* Front and lateral views of a kneeling figure made of clay; length 6, width 5 inches
b Small bowl (Archbishop Meriño collection); diameter 5 inches
c Small bowl (Archbishop Meriño collection); diameter 5¼ inches

a

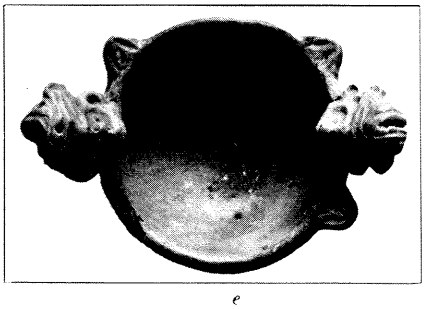
a′



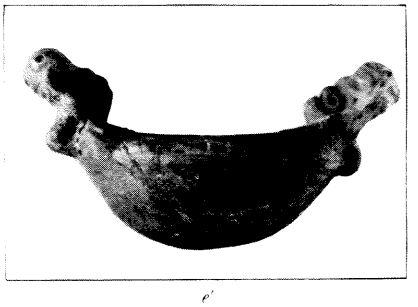
b



c *d* *d′*



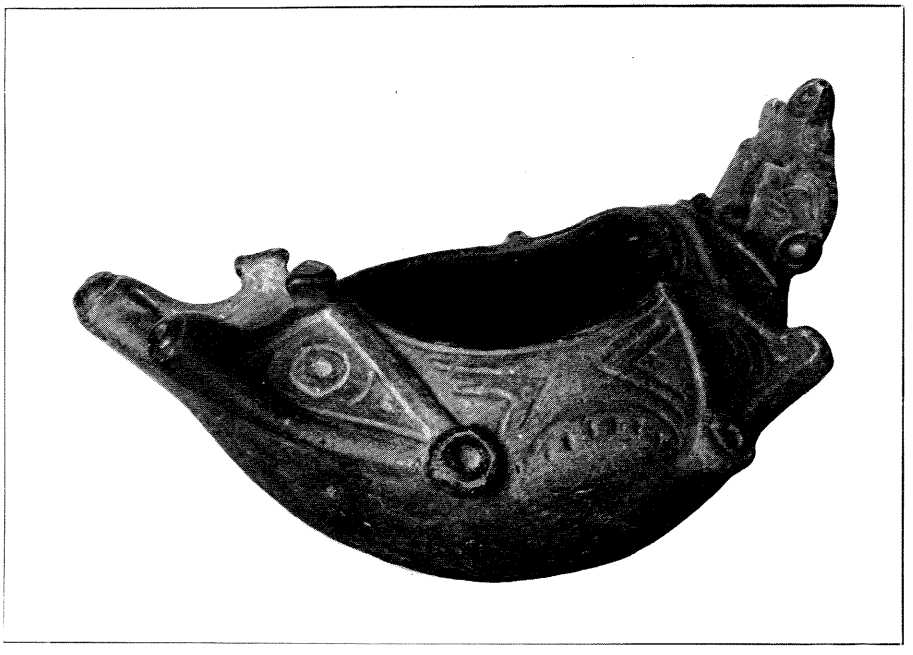
e



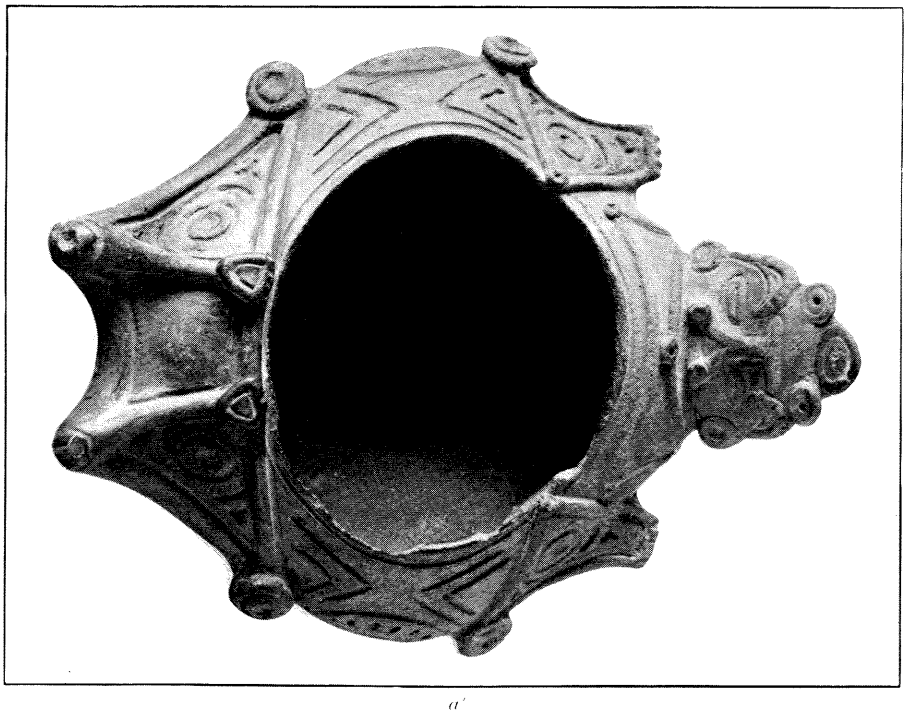
e′

POTTERY FROM PORTO RICO AND SANTO DOMINGO

a, *a′* Top and side views of bowl from near Utuado, Porto Rico; diameter 4 by 2¼ inches
b Lateral view of a globular bowl, Porto Rico; diameter 7 by 3 inches
c Rough bowl with two handles, Utuado; diameter 7 by 6⅝ inches
d, *d′* Two fragments of a dish from Porto Rico; one-fourth natural size
e, *e′* Top and lateral views of a bowl with two heads (Archbishop Meriño collection); diameter 6⅛ and 3 inches

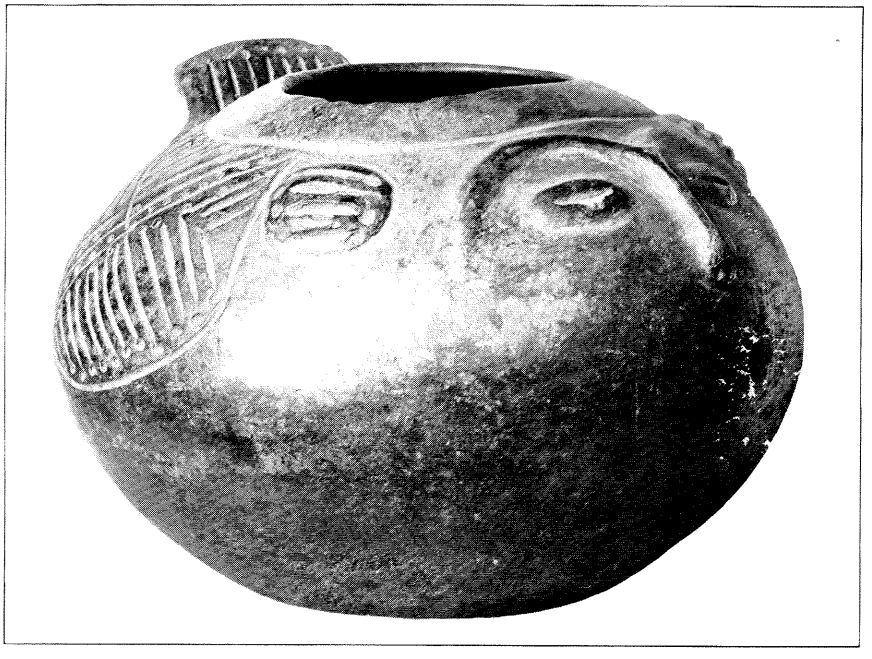


a



a'

(*a*) LATERAL AND (*a'*) TOP VIEWS OF AN EFFIGY VASE FROM AGUAS BUENAS, PORTO RICO: 8⅛ BY 6¾ INCHES



a

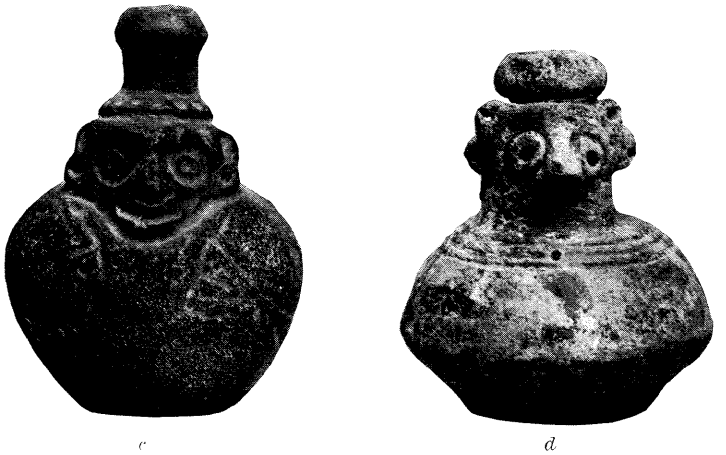
a'

(*a*) FRONT AND (*a'*) TOP VIEWS OF BIRD EFFIGY BOWL FROM WESTERN END OF PORTO RICO (NEUMANN COLLECTION); HEIGHT 7, DIAMETER 9 INCHES

a *a′*

a″

b *b′*



c *d*

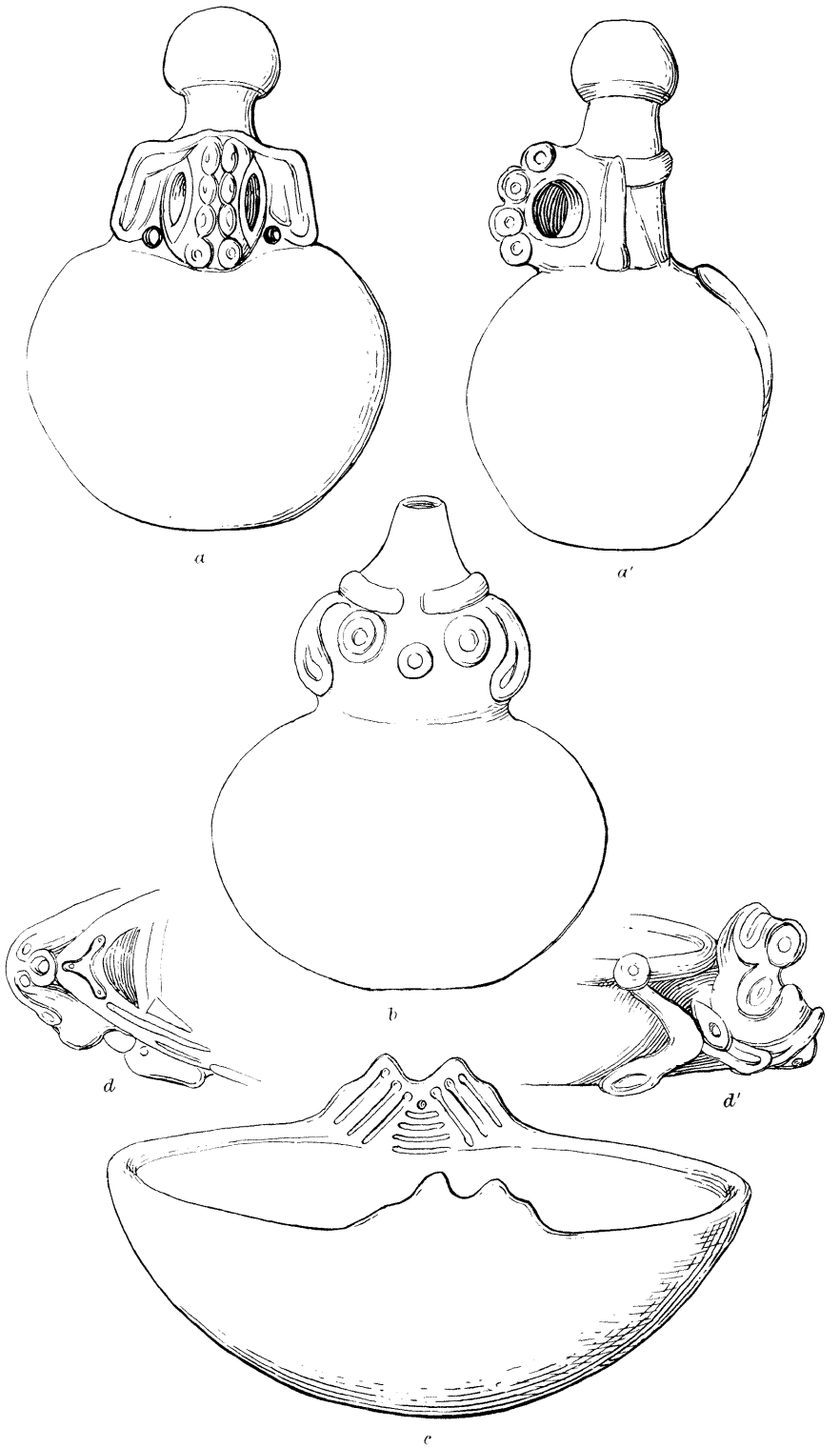
VASES FROM SANTO DOMINGO

a, *a′*, *a″* Front, lateral, and top views of mammiform vase (Archbishop Meriño collection): height 10½ inches

b, *b′* Lateral and front views of bowl with relief decoration; diameter 5, height 3¼ inches

c Bottle-shaped vessel (Archbishop Meriño collection): 4⅛ by 3 by 2 inches

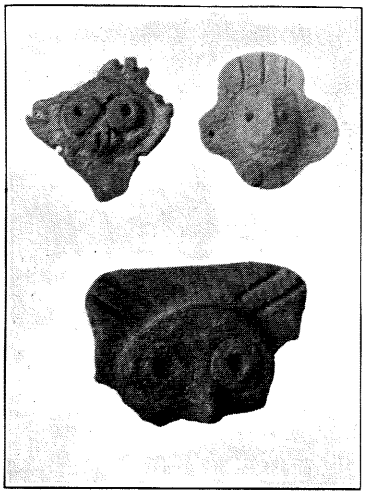
d Bottle-shaped vessel (Archbishop Meriño collection): 3⅞ by 2⅝ inches



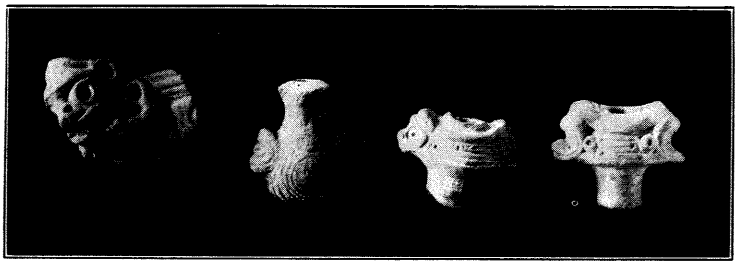
BOTTLE-SHAPED VASES AND BOWL FROM SANTO DOMINGO (IMBERT COLLECTION)

a, *a'* Front and lateral views of bottle vase, with perforation on one side of neck
b Vase with head represented on side of neck
c Bowl with opposite elevations on the rim. (See Plate I
d Fragment of flat bowl or dish: *d* view from below; *d'* lateral view

a



b, c, d

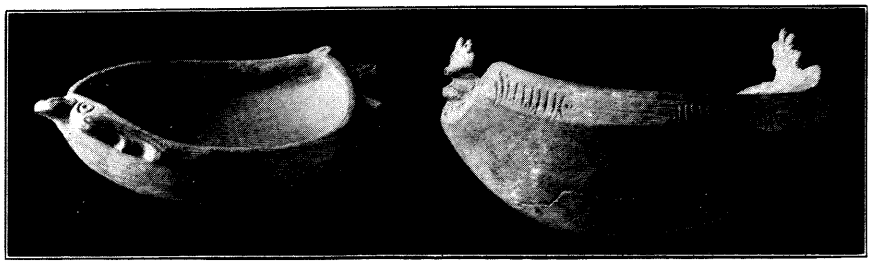


e *f* *g* *g'*

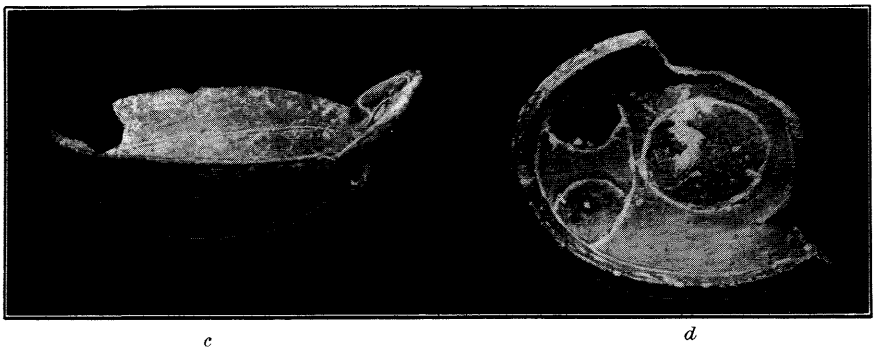
h *i* *j* *k* *l* *m*

POTTERY OBJECTS

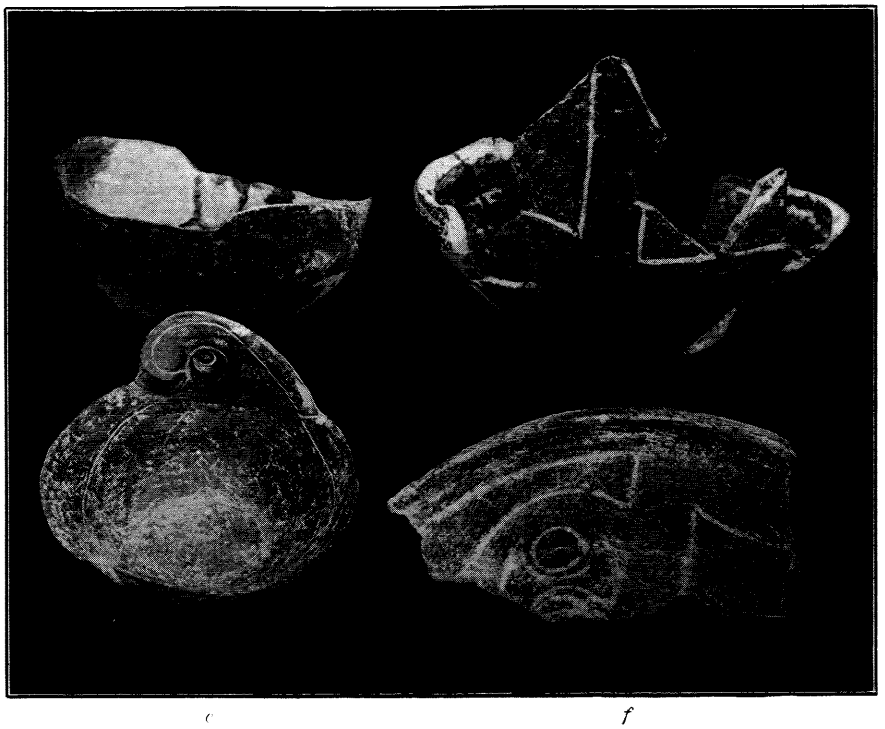
a Image made of burnt clay, Santo Domingo (Desangles collection); size much reduced
b, c, d Three fragments from Nipe bay, Cuba; one-half natural size
e–i, k–m Fragments from Santo Domingo (Archbishop Meriño collection), one-third natural size
j Purchased by author



a *b*



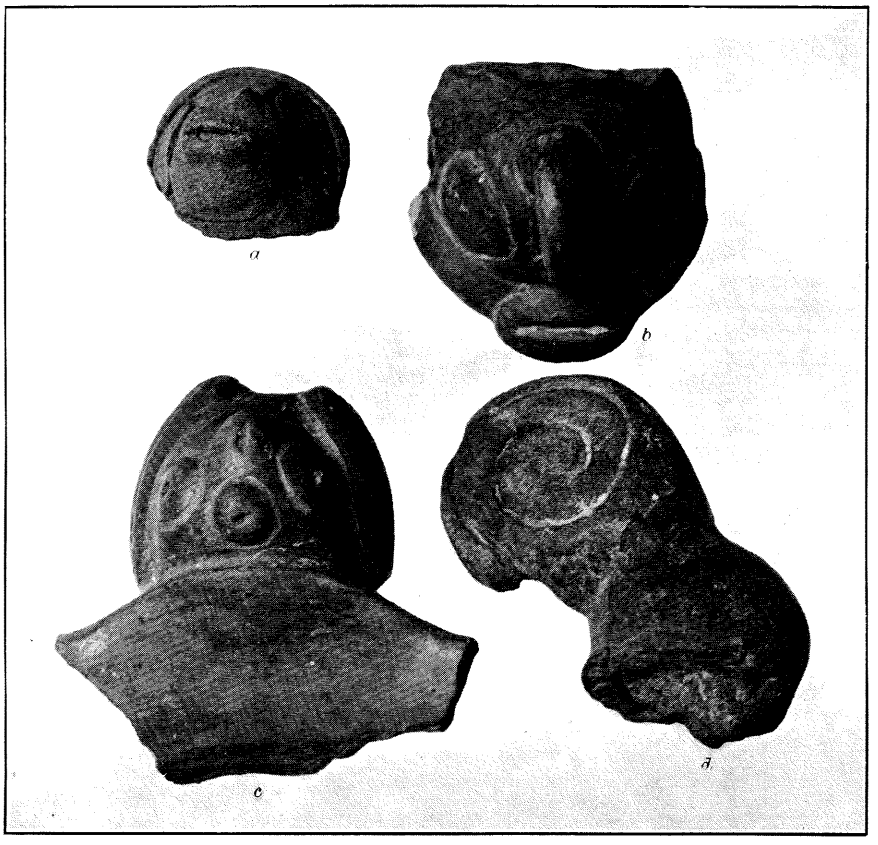
c *d*



e *f*

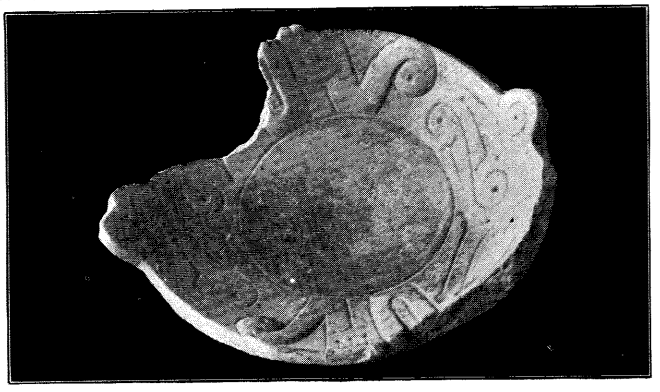
POTTERY FROM THE WEST INDIES

a Shallow bowl or dish, 12¼ by 9½ by 3 inches
b Elongated dish, with heads on opposite rims; 13 by 11½ by 4 inches
c, d, e, f Flat bowls and shell-shaped pottery, St Kitts, British West Indies (reduced one-fourth)



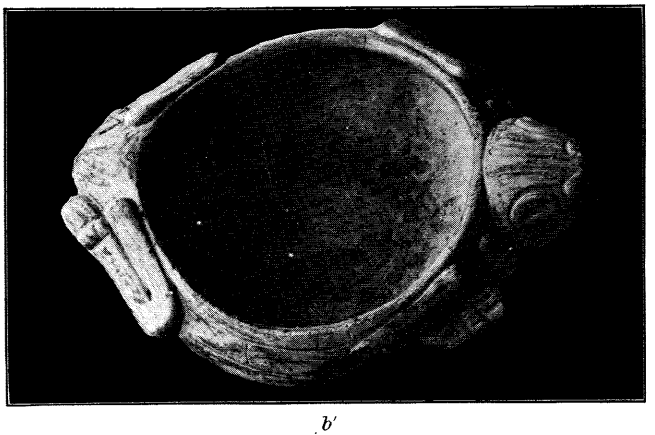
POTTERY FROM GRENADA, BRITISH WEST INDIES

a–*d* Fragments of bowls or vases (reduced one-third)
e, *f* Clay heads (slightly reduced)

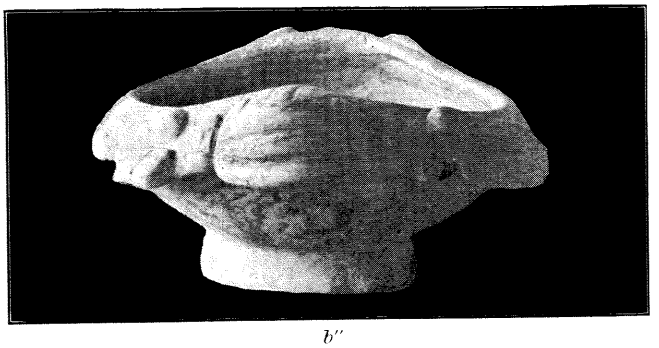


a

b



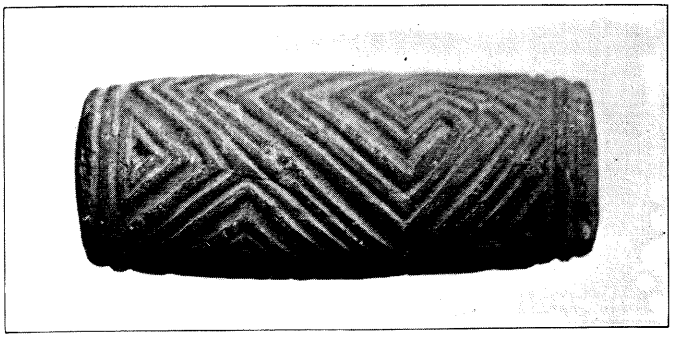
b′



b″

POTTERY FROM TRINIDAD, BRITISH WEST INDIES (MUSEUM OF PORT OF SPAIN)

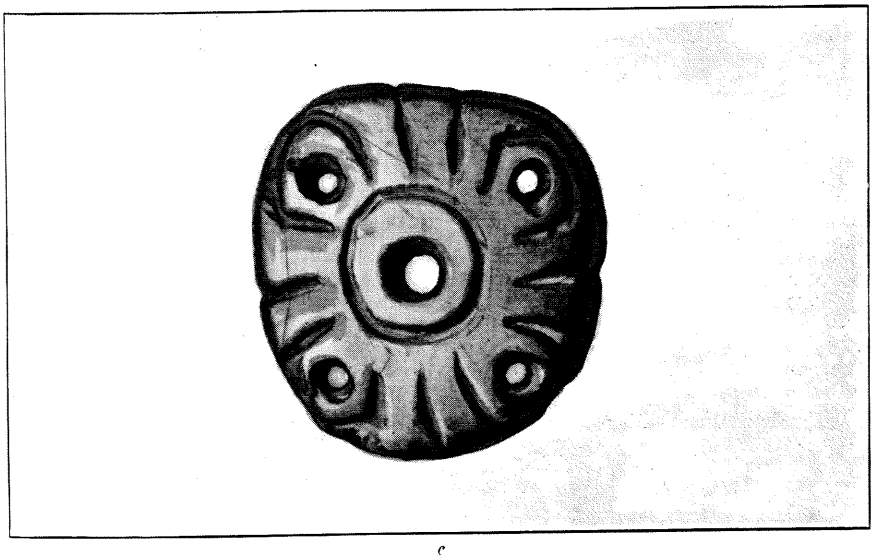
a Interior of decorated dish
b, *b′*, *b″* Lateral, top, and front views of turtle-shaped effigy bowl



a

b

b'



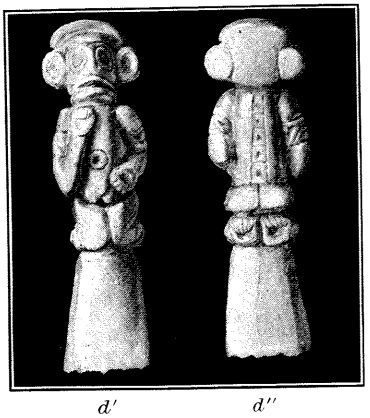
c

POTTERY OBJECTS AND STONE SPINDLE WHORL

a Cylinder for stamping pottery (Archbishop Meriño collection): length 3¾, diameter 1½ inches
b, b' Obverse and reverse of a stamp with inscribed designs (Archbishop Meriño collection): diameter 2⅛ inches
c Spindle whorl (Latimer collection): diameter 1¼ inches

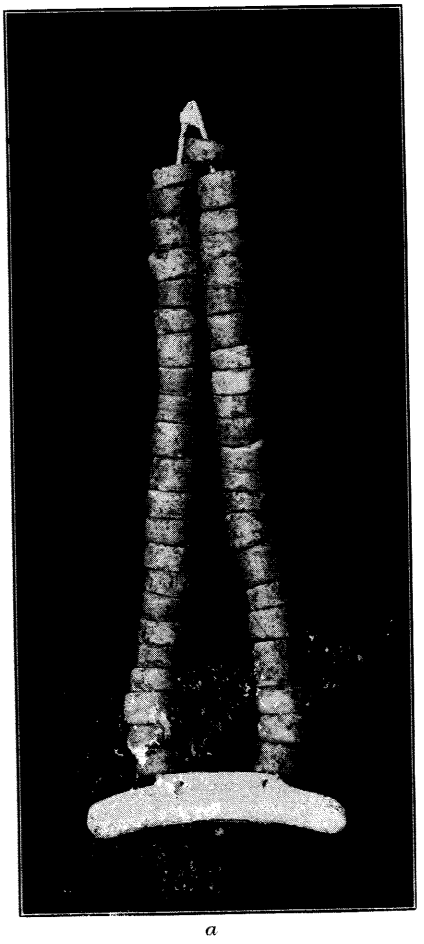
d

g

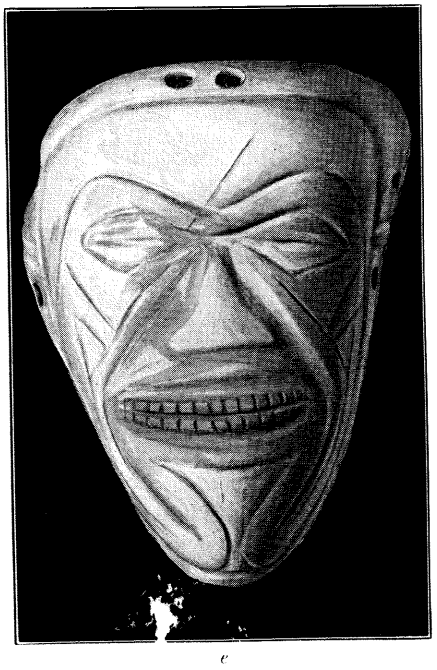


d′ *d″*

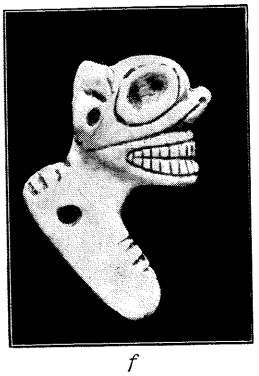
c



a



e

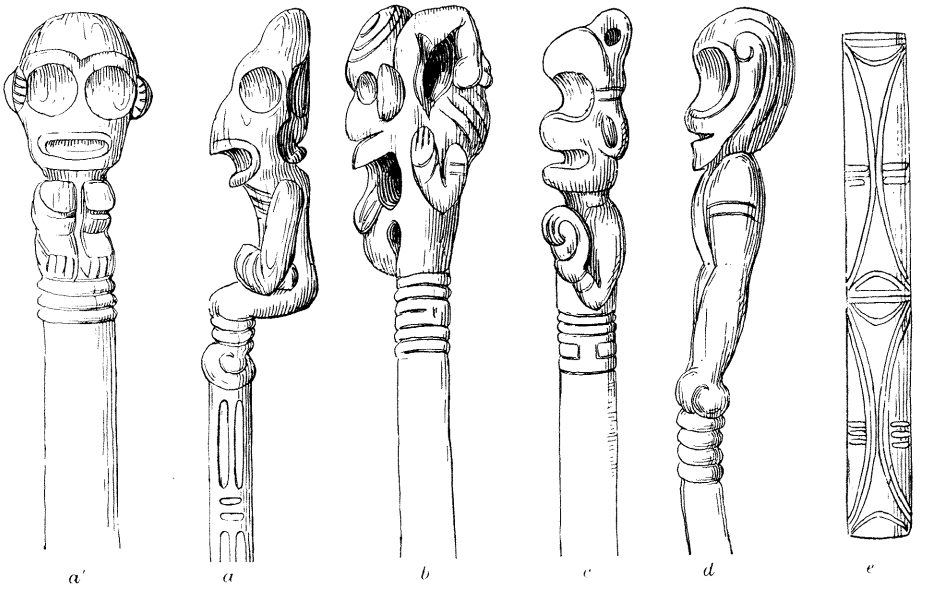


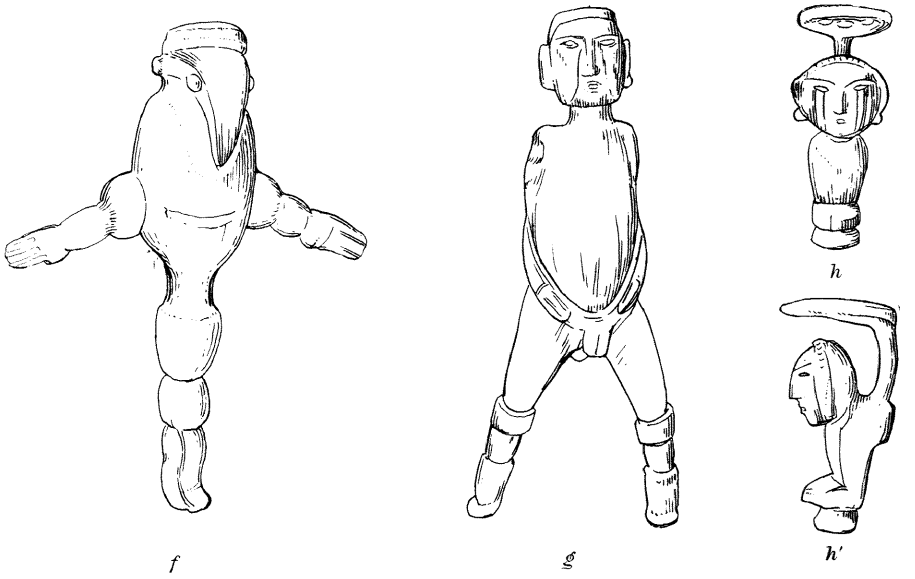
f

b

STONE, SHELL, AND BONE OBJECTS

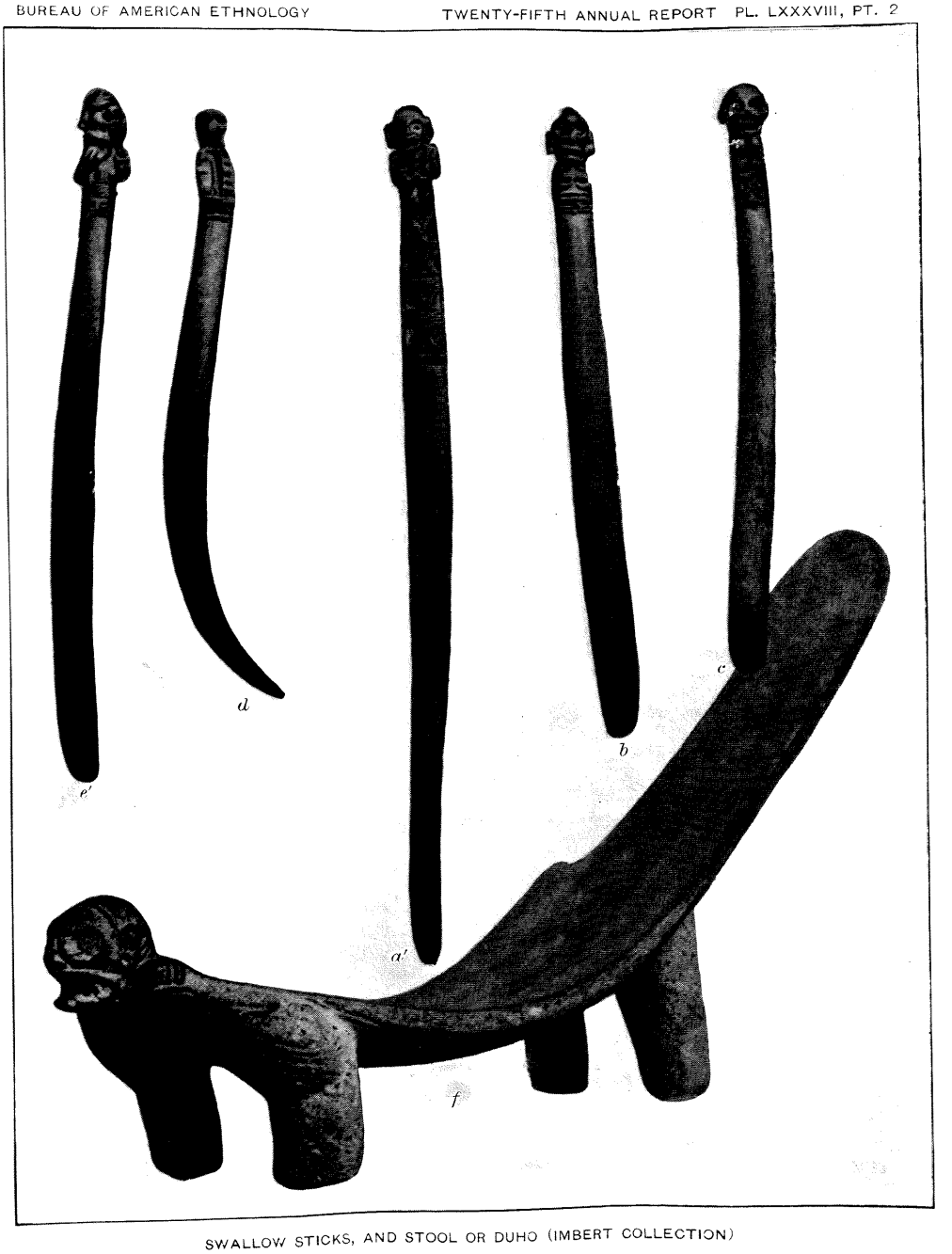
a Necklace of stone beads with attached shell pendant, Utuado, Porto Rico
b Cut-shell objects, Cueva de las Golondrinas, Porto Rico
c Carved shell (Archbishop Meriño collection); one-half natural size
d, *d′*, *d″* Swallow stick made of bone (Archbishop Meriño collection); one-half natural size
e Shell mask (Latimer collection)
f Frontal amulet made of shell (Archbishop Meriño collection); three-fourths natural size
g Frontal amulet made of bone (Archbishop Meriño collection); one-half natural size



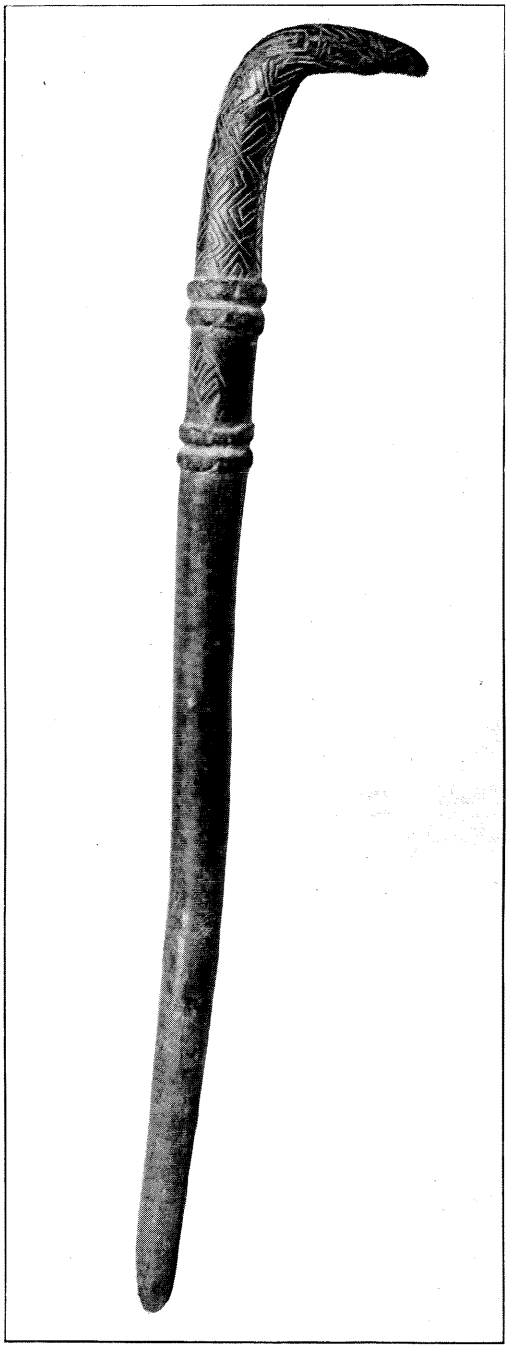


WOODEN STICKS AND IDOLS

a, *a'*, *b*, *c*, *d* Ends of curved swallow sticks (Imbert collection)
e Decoration on the side of one of the swallow sticks
f, *g* Idols, Jamaica, British West Indies
h, *h'* Front and side view of idol, Jamaica, British West Indies



SWALLOW STICKS, AND STOOL OR DUHO (IMBERT COLLECTION)



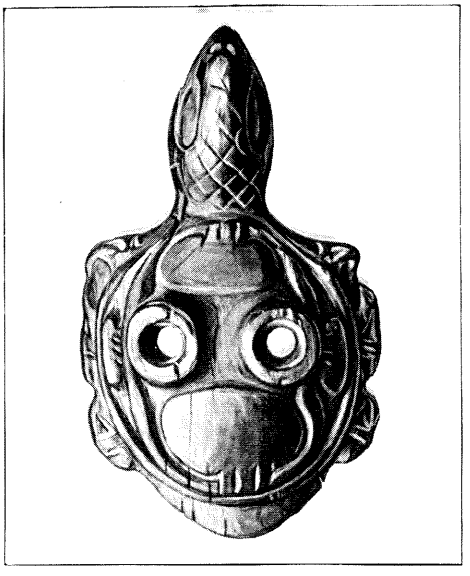
a

b

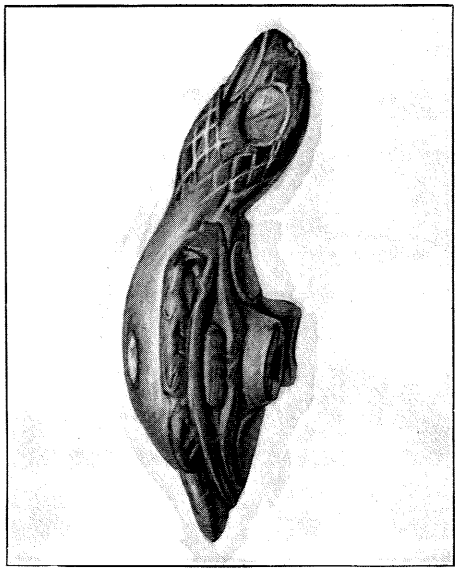
b′

WOODEN BATONS

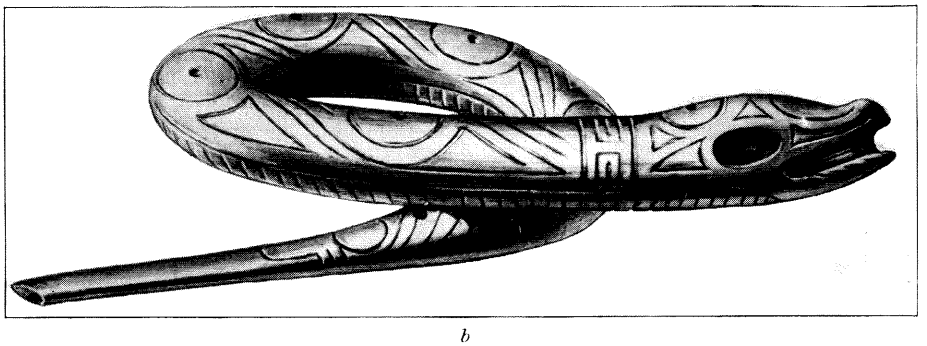
a Ornamented planting dibble (Neumann collection); length 3 feet 6 inches
b, *b′* Lateral and front views of the end of a ceremonial baton (Gabb collection); length 27⅛ inches



a

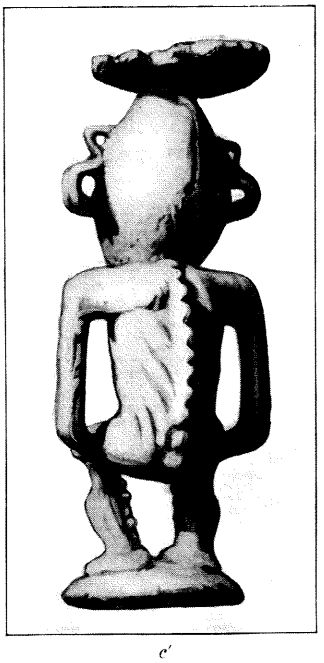


a'

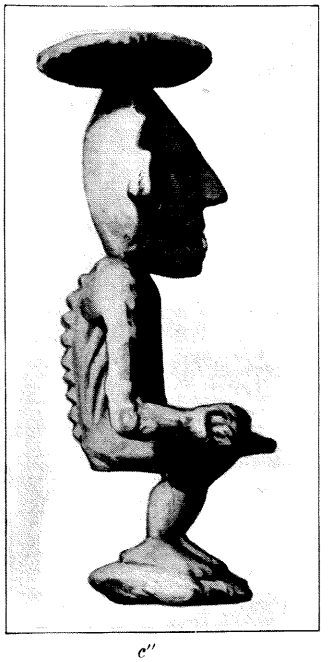


b

c



c'

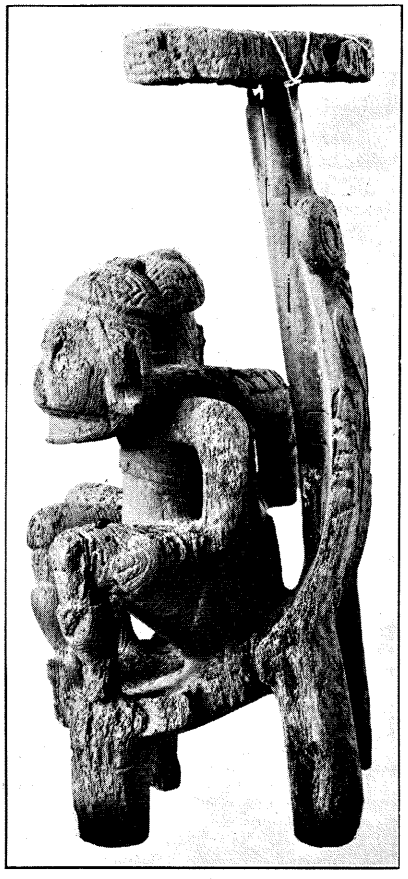


c''

WOODEN IMAGES AND IDOLS

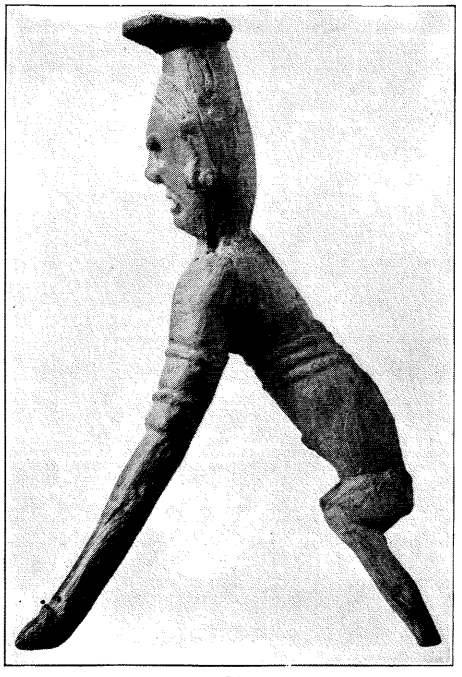
a, *a'* Lateral and top views of turtle, St Vincent (Ober collection); 4⅛ by 2¼ inches
b Serpent, Santo Domingo (one-half natural size)
c, *c'*, *c''* Front, back, and lateral views of idol (Imbert collection); approximately 3 feet high

a



a′

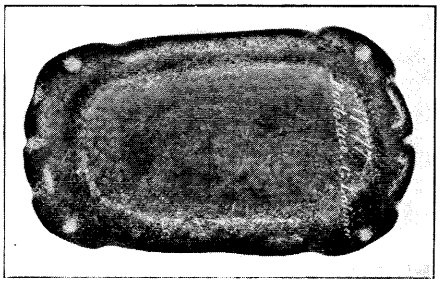
b



b′

WOODEN IDOLS

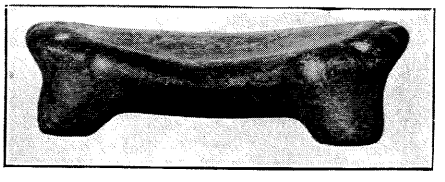
a, *a′* Front and lateral views of twin idols seated in a *duho;* height 31 inches
b, *b′* Front and lateral views of idol, Caicos, or Turks Island; height 43 inches



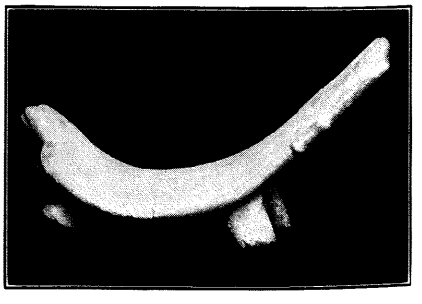
a

a''

b'



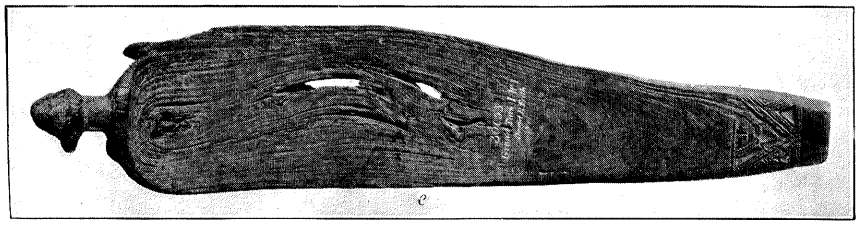
a'

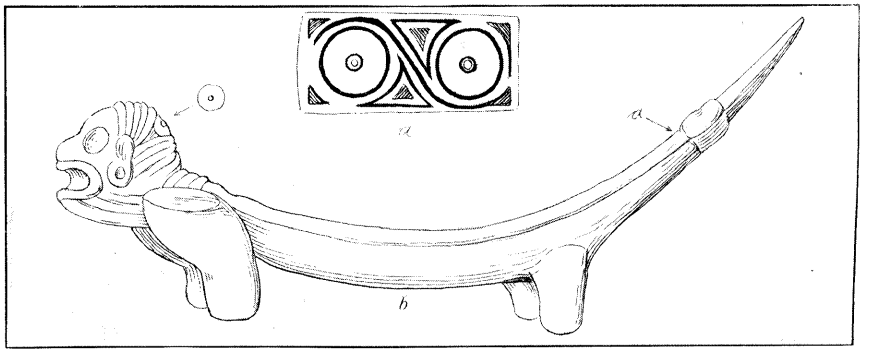


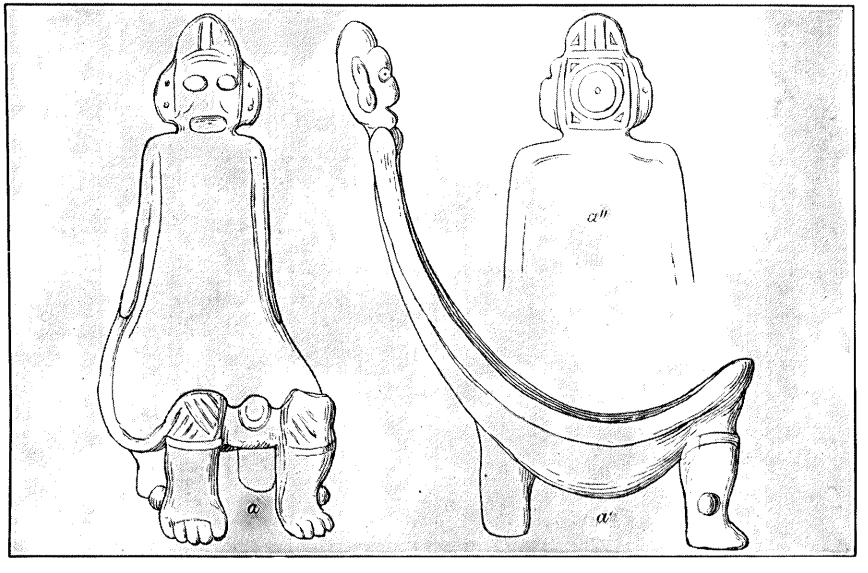
b

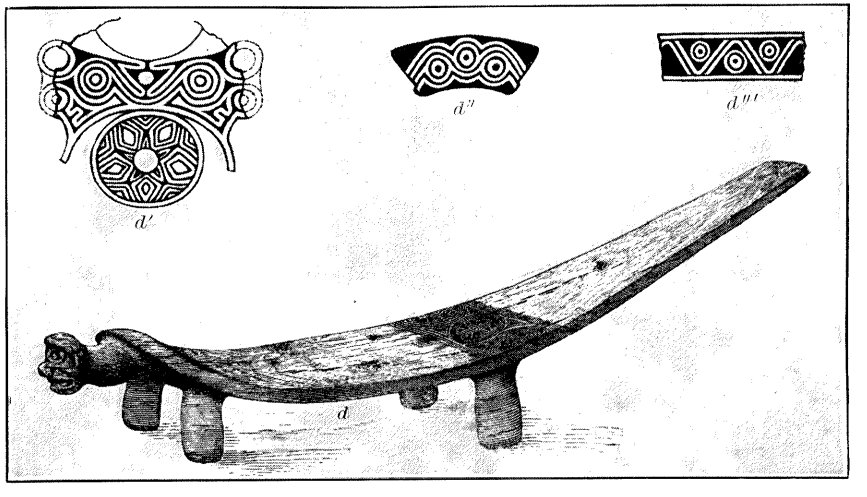
STONE STOOLS, OR DUHOS

a, *a'*, *a''* Top, lateral, and bottom views (Latimer collection): $7\frac{3}{8}$ by $4\frac{1}{8}$ inches
b, *b'* Lateral and front views of *duho* with back (Latimer collection); $11\frac{1}{4}$ by $5\frac{1}{4}$ inches









WOODEN STOOLS, OR DUHOS

a, *a'*, *a''* Front, lateral, and back views of *duho* of human form (Dr Llenas collection)
b, *b'* Lateral view of specimen (Imbert collection); *a*, decoration
c Top view of specimen from Turks island; one-fifth natural size
d Lateral view; the accompanying figures, *d'*, *d''*, *d'''*, show incised decoration (Latimer collection)